Progressive Architecture

OCT 11 1948

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10/48

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Progressive Architecture

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ENCIL POINTS)

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ed in Art Index.

➡ C.A.A. reports 16,370,000 hours of private and non-scheduled commercial flying in 1947, an increase of 67 percent over 1946. Several schemes for private flyers' facilities at airports have been proposed, none adopted. If rate of increase in traffic keeps up, as expected, some provisions will have to be made for sleeping, eating, rest rooms. Private flyer is now an orphan at most ports.

➡ Adirondack Homes, producers of the Look house, have ambitious scheme for coordinating activities of most producers of "conventional" prefab houses. Harry Levey, Adirondack president, is working to link such fabricators in informal network, each producing for area he can serve most efficiently. Levey points out that shipping charges eat away savings of factory construction.

Builders of this type of prefab met in Chicago last month at Levey's request to discuss possibilities. Scheme is to have all sell "Adirondack" house in addition to own product. Low-priced Adirondack model sells for about $8,000 in New York area, is a good buy at that price.

➡ Housing Bill passed by Congress in extra session provides some interim financing which will help both the prefabricator and the normal builder over the period when he has to put up his own money. Insured short-term promissory notes intended to do this will bear interest of four percent.

Other provisions of new housing bill include revival of Title VI rental housing mortgages (90 percent of replacement cost, figured on 1947 year-end costs) and amendment of Title II, authorizing 95 percent buyers' loans--85 percent builders' loans--on houses costing $6,300 or less. Some important areas of the country cannot hope to qualify under that ceiling. No long-range planning, slum clearance or public housing measures were included.

➡ A.I.A. is now offering its members a group "professional liability" insurance policy. $25 annual premium covers $25,000 damages.

➡ Accommodations for teachers are part of the present problem of overcrowding in the schools and colleges. Many universities are constructing faculty housing, while some towns that have trouble holding lower-school teaching staffs are building or converting apartments.

A progressive Protestant congregation in the Midwest is looking for an architect to design a contemporary church structure. Selection will be made soon.

➡ Continuous casting of semi-finished steel, with molten metal passing directly to billet mold--dream of the industry for years --has been announced as an actuality by Republic Steel and Babcock and Wilcox Tube Co. Resulting low capital and operational costs, if proven out, should reduce cost of finished product appreciably.

A much sought commission in N. Y.--the home office building of Mutual Life with 390,000 usable sq. ft.--has been awarded to Shreve, Lamb and Harmon, architects.

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Approximately 20,000 Sylvania Fluorescent Troffer Fixtures will light the big, new, 26-story John Hancock Mutual Life Insurance Co. building in Boston.

Probably the largest fluorescent troffer lighting job in the world, this Sylvania installation consists mainly of 8-foot shielded troffers, although some 4-foot units are included. Sylvania fixtures were the choice of the John Hancock planning board after an extensive series of studies and tests conducted with actual installations of fixtures submitted by most of the leading manufacturers in the industry.

The fixture shown at the left is the Sylvania CTRS-340 troffer (three 40-watt lamps) with the louver shielding lowered for lamp installation. This same unit is available with either one or two lamps and glass shielding as well.

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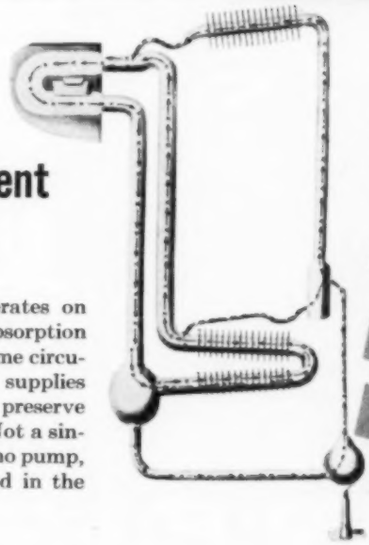

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STAYS SILENT... LASTS LONGER

Servel

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P Views

CONVENTION REPORT

Dear Editor: Just a line to let you know I have seen the last issue of PROGRESSIVE ARCHITECTURE and enjoyed very much reading your account of the convention. It was comprehensive, well expressed, and above all, conveys to the public the fact that the A.I.A. is progressing, and is in truth now a representative organization of the profession. We have been struggling for years to achieve this, and it looks as if our work is beginning to bear fruit.

EDMUND R. PURVES, Director
Public and Professional Relations
American Institute of Architects
Washington 6, D. C.

UNPAID WORK NOT DONE

Dear Editor: Although Mr. Tomson's report in August P/A on the American Store Equipment-Jack Dempsey case was generally good, he was in error when he stated "not only was the Contractor denied recovery for his fee for the preparation of plans, drawings, and specifications, but it was also not permitted to recover for any of the work done."

The fact is that no work was done by the American Store Equipment beyond the design and planning stage. The construction contract was awarded to lower-bid contractors on American's plans and specifications. The American Store Equipment Corporation sought reimbursement on its untenable design agreement.

Since I was the Architect retained to design and supervise the execution of all drawings, I had occasion to forewarn the vice-president of the American in 1937, that unless I were party to the contract, his design agreement might prove worthless. The $50,000-a-year brain chose to disagree for numerous (selfish) reasons.

This is an interesting sidelight on the case; when the legal talents were preparing their offensive they decided on the direct attack, i.e., "We had a capable licensed architect in charge with a distinguished background," and I was primed for the witness box. Whether it was because I pointed out that my name was not partner to the contract, or the legal minds had a change of heart, there was a last-minute "shift around left end" and a fabulous razzle-dazzle play about being interior decorators was worked up.

DANIEL LAITIN
New York, N. Y.

DISTURBED BALANCE

Dear Editor: "The Supreme Court is a vast, frightening building."

"I can think of nothing more frightful than to have to work all day . . ."

"In Chicago I saw one of the most frightening things in the way of a building."

"One feels completely over-shadowed by this frightening building."

These quotations taken from the first two paragraphs of the condensation of a report by Clive Pascal, A.R.I.B.A., (August 1948 P/A) leads to the conviction that "his flying visit" did irreparable damage to his nervous system. Instead of resenting his caustic criticism, one might charitably conclude that flying the Atlantic so disturbed the delicate balance of his psyche that everything he saw in the United States was viewed through phobic lenses and naturally had a "frightening" aspect.

J. MARSHALL MAYES
Autrey Heights
Rockville, Maryland

PLANNING OBJECTIVE

Dear Editor: I was interested in your P.S. in the July issue, enjoying in particular your analysis of the gobbledygook. Believe me, when endeavoring to explain the principles of planning to citizens and officials of small towns in the valley, the big words will not do. Neither will the medium-sized words. "Physical environment" means nothing to a farmer. To promote "social and economic planning" would cause a riot.

Rock bottom terminology requires an expression in terms of planning for better living. There are several ways of working for a better living. One is to increase production on farms. Another is to create industrial employment for nonfarm workers. A third is to create the organizations by which people can work together, and enjoy being together. And a fourth is to improve the places where people live—the residences, recreation areas, and the towns in general. To my mind no single one is more important than the other, although one might of necessity precede another.

However, as I understand your viewpoint, you would believe that the last is the objective of planning. Quoting from your words: "They come to life only when and if communities and buildings result from them." Why so? As an architect I would rejoice if we could tear down some of these miserable county-seat towns and rebuild anew—planned by Churchill. But as a planner I realize that the results of planning come to life in many other ways as well: better farms, better highways, better living. Better communities and buildings are a part of better living. Do you maintain that we should limit ourselves to that part?

HERBERT W. STEVENS
Community Planner
Government Research Branch, TVA
Knoxville, Tenn.

P.S. As a personal letter, this has nothing to do with TVA policy.

HARMONIOUS, INFORMATIVE

Dear Editor: We are very pleased with the fine spread you gave my house in the July issue of PROGRESSIVE ARCHITECTURE. It is particularly pleasing to see the photographic reproductions of generous size and of a harmonious arrangement. Also, the plans, details, and text are very informative.

ALBERT FREY
Clark & Frey
Palm Springs, Calif.

P/A INFORMATIVE

Dear Editor: PROGRESSIVE ARCHITECTURE keeps me and my students informed about contemporary buildings and interiors. We appreciate especially the construction details—and the information about current literature.

MARYA LILIEN
Department of Interior Architecture
Art Institute of Chicago

ARCHITECT'S FREEDOM

Dear Editor: Articles have been appearing recently in some architectural magazines and trade papers attacking the professional achievements of architects who work for government agencies, and denying the desirability of government participation in housing and planning. The argument of these articles is that the architect loses his professional independence and integrity as soon as he works for an agency representing the general population, *e.g.*, for a housing authority, a city planning board, or one of the government agencies such as the T.V.A. or Farm Security. The conclusion to which they try to point is

(Continued on page 10)

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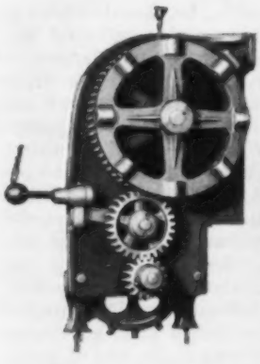

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At Right: Mahon Underwriters' Labeled Rolling Steel Fire Door, 24 x 15 ft., in a Fire Wall of the New Greyhound Service Garage Building, Detroit, Michigan. Harley, Ellington & Day, Architects.

ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

MAHON

Views

(Continued from page 8)

that the architect can retain his professional status only by working for private corporations and individuals.

These articles require some study. How much independence does an architect actually have, for example?

The use of his building is determined by its social purpose; in other words the program is given by the activity for which he must design a shelter. He finds out, from the people who will use it, the component parts of the activity and their interrelationships and provides for these in his design. The program, then, has nothing to do with the architect's independence.

Structurally the architect is bound by the limitations of his materials, by the laws of nature, by the productive level of the nation, and by the skills available among the construction workers of the time.

The architect is also forced to use cost as a criterion in the choice of his design. And cost is fixed on the one hand by the client, on the other by the state of the national economy.

With regard to the appearance of the building, every architect knows that the clients, their friends, and all the people who will use the building are equipped by their upbringing and their society with certain ideas about appearance and esthetic feeling which cannot and should not be ignored. (That is not to say that these feelings should be followed, but rather that they should be guided.)

The skilful blending of these many real aspects of design and construction in order to create a beautiful building is the architect's province. Here is his creative role; here his ability may be demonstrated.

But in accepting the limitations of use, construction, costs, and emotion as given by private clients in an unplanned society, the architect is not "independent." His design is affected by the necessity of his client to make a profit, *i.e.*, to stay in business: usefulness to society is secondary.

In contrast to the situation with private clients, the articles referred to above emphasize the terrible dangers of bureaucracy. There are some difficulties, it is true. But the excellent architectural achievements of, for example, the Public Works Agency housing, the Farm Security Administration projects, the T.V.A., many of the U.S.H.A. projects, many of the buildings designed by the Bureau of Yards and Docks of the Navy, the bases designed and built by the "Seabees" during the war, some of the defense housing projects—all refute the claims that government intervention means the end of good architecture.

On the contrary, government housing projects, even when designed with a lack of imagination, stand as areas of common sense, of planning for human use, in the midst of confusion and disorder.

The capable architect, whether within the government or without, can use the agencies' standards to design well and beautifully. It depends on him whether he follows the letter or the spirit of the recommendations of research. Such unconventional designs as the defense housing project at New Kensington, Pa., by Gropius and Breuer show that government standards do not prevent a fresh approach to architectural problems.

It is unfortunately true that the standards of U.S.H.A. projects were pushed to such a minimum that many of the projects bear a family resemblance of dullness and rigidity. However, this is a result not of government intervention, but of the powerful opposition to public

(Continued on page 12)

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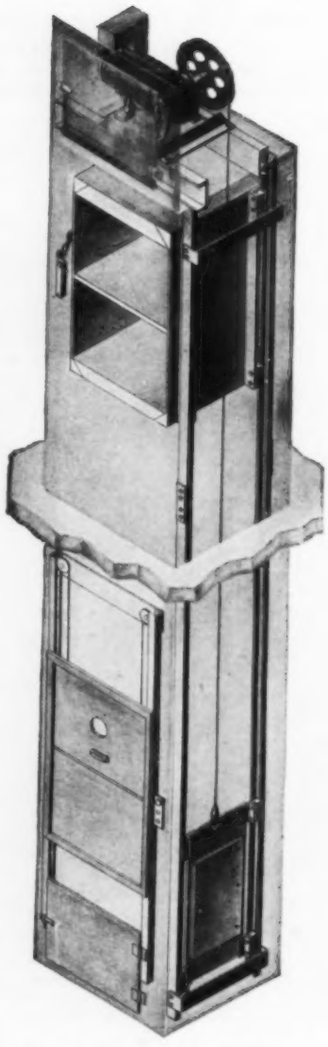

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Views

(Continued from page 10)

housing from the real estate lobbies. Although at that time they could not kill public housing (as they have practically succeeded in doing today) they did force the costs down to a point where only exceptional architectural genius could break out of the strait jacket of economy.

In view of these architectural achievements of government agencies what then is the purpose of attacks of this sort? It can only be to raise doubts and confusion by misinterpreting the ideals of freedom and independence which are in the minds of architects. The interests which are most anxious for the publication of these articles hope to frighten architects away from a rational approach to the problems of city planning, housing, civic beauty, to the whole question of the organization of human environment.

Logically it is clear that unless local or regional governments can control the uses to which *all* of the land in their areas is to be put, there will be no positive planning, only the negative planning of ordinances and zoning restrictions. The frustrating experiences of the city planners in the United States during the past forty years show that this is also true in practice. Decrying planning as government intervention which will destroy the integrity and independence of architects should not distract the serious architect of today from the real situation.

Architects who support government housing, city and regional planning are not moved only by altruistic reasons or by selfish personal reasons. They realize that the government must do the housing and the planning because private enterprise cannot. Businesses are run for profit; if they can't make a profit, they can't exist. And everyone knows that there are no profits to be made from building low-cost housing. It is this fact, not any immorality on the part of private enterprise, which is the reason for its failure in the building field.

There is no evidence today that private enterprise is going to achieve a solution to our planning and housing problems. Its effect on real, social planning has been clearly shown since the end of the war.

Architects have the chance to point out to the people around them the necessity for more, not less, government aid for housing and planning. These and land control can be carried far without basically disturbing the private enterprise system. They do imply, however, considerable government aid like highways, hospitals, conservation, flood control, postal service, and schools. Architects who speak out can help toward the creation of the well-planned cities and decent housing which are easily within the productive capacity of America.

H. Seymour Howard, Jr.
New York, N. Y.

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Top—Processing Room of Locker Plant at Port Neches, Texas. ROMANY Tiles used.

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Left—View of the Locker Plant room at Conroe, Texas. ROMANY Tiles used for wainscot and counter front and top.

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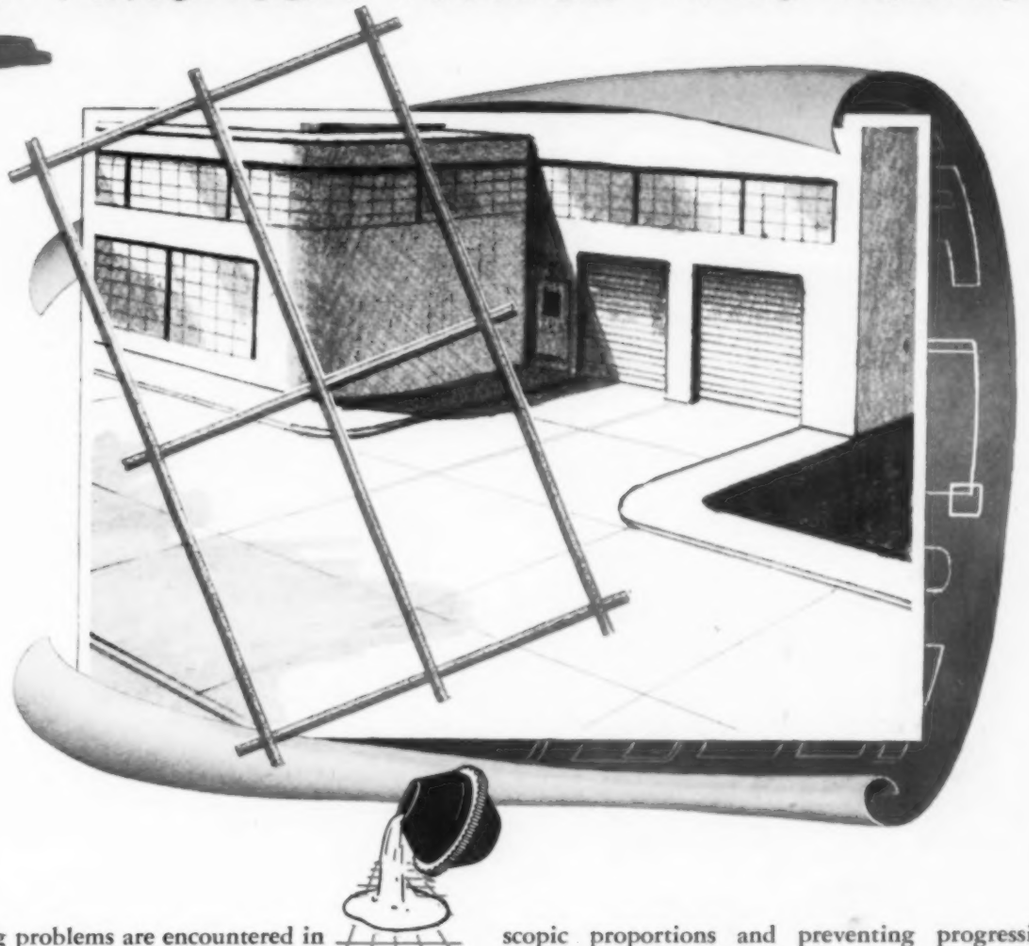

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BUILDING FOR LEARNING

Tremendous advances in school planning techniques made in the last few years are reported on film, lecture-slides, and a Graphic Outline prepared by an alert Texas research group, as a means of informing school authorities, parents, and interested citizens of the progressive standards for school buildings. This triple presentation,* titled *Building for Learning*, seeks to summarize the pressing problems of school planning—and the answers.

"The architects and the engineers have at their disposal a wealth of technical information on all phases of school planning; yet we continue to build outmoded schools. Why?" asks Prof. William W. Caudill, architect and educator who prepared the keynote lecture of the presentations. "Possibly the architects and the engineers do not make use of the up-to-date information. More probably, the school boards as well as the people have not wanted innovations in school planning because they have not understood the real problems. We cannot solve a problem unless we know what it is."

The motion picture with sound track and background music was produced by the Department of Architecture, A.&M. College of Texas, with the Texas Engineering Experiment Station as sponsor. Dramatizing school problems and their remedies by showing children's activities, in old-type and modern school buildings, it is intended for meetings of school boards, P.T.A. groups, service and civic clubs.

Mary Ann, a typical elementary school pupil, is the featured player in the film and also the subject of the Graphic Outline, which is reproduced below since it synthesizes the triple presentation. Examples chosen to illustrate *Building For Learning* include schools by noted California firms as well as modern Texas schools—photographed by architectural students of the fifth year at A. & M. College during a field trip for that purpose.

The Graphic Outline of "Basic Considerations of Classroom Design" is as follows:

* *"Building For Learning" presentations: a 16 mm. motion picture with sound track; a lecture with 59 color slides, 2" x 2"; a printed graphic outline folder, usable as program for film or slide show, or as a planning document. For bookings or purchase, address inquiries to Texas Engineering Experiment Station, College Station, Texas.*

The cover of the Graphic Outline of "Building For Learning" shows Judith Ann Bishop, schoolgirl of College Station, Texas, who is featured as "Mary Ann" the typical pupil for whom better schools must be designed and equipped. Photographs of this little girl and her classmates were taken during actual classroom activities of the consolidated school

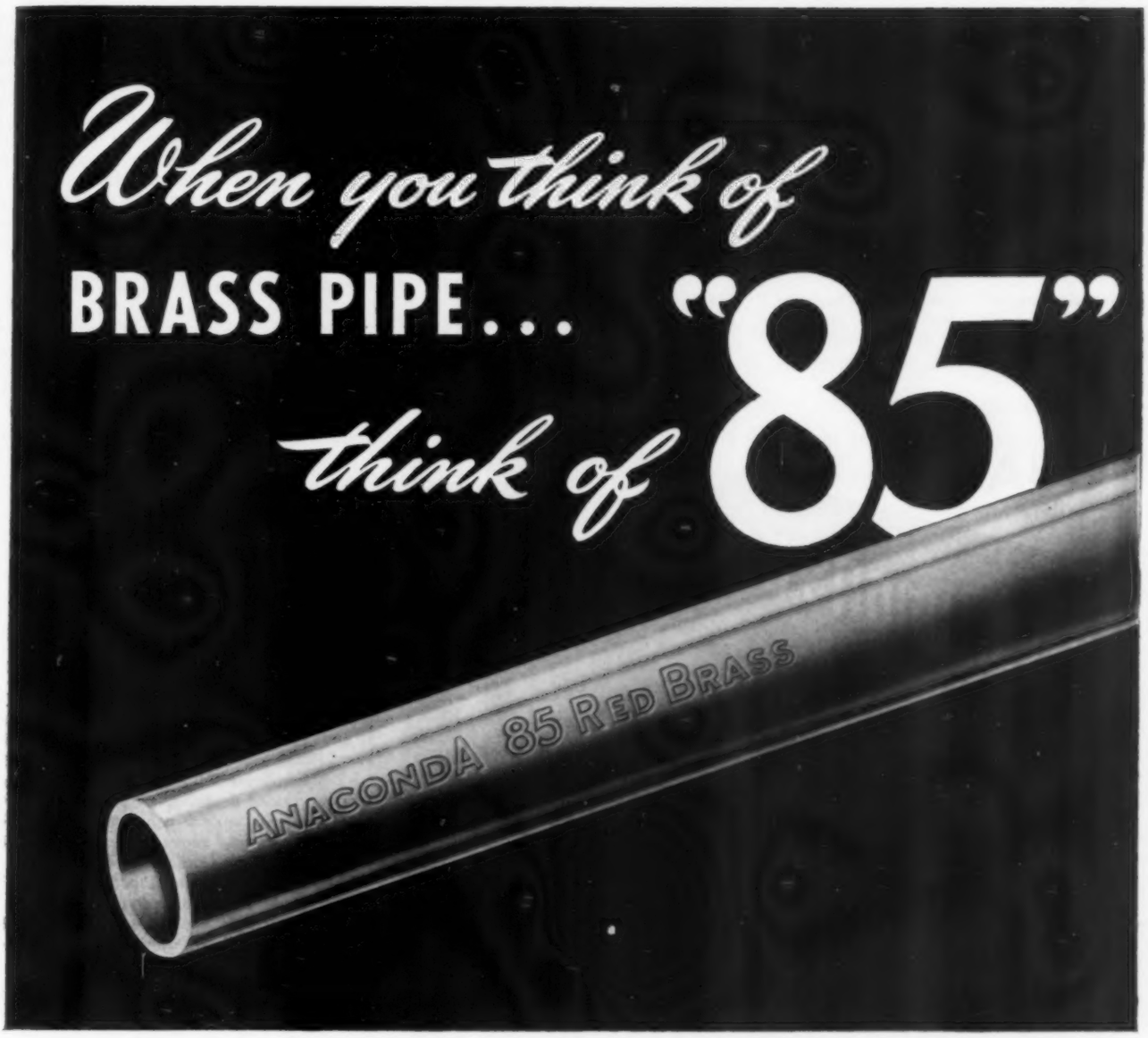
LIGHT

Why have good lighting for Mary Ann? According to Dr. D. B. Harmon, an authority on child development, good classroom lighting is essential to both health and learning. He points out, in one case, that children did ten months' work in six after bad classroom lighting was corrected. Eye strain was reduced and even digestion greatly improved. If classroom lighting is so important to learning and health, then how can we give Mary Ann the best? Here's how.

Give Mary Ann the right amount of light: Regardless of where she sits in the classroom, she should have plenty of light. By proper placement of windows (on two sides, sometimes on three, or even overhead), of light reflecting louvers, of directional glass blocks, and in many other ways classrooms can be lighted evenly throughout. Douglas Haskell has written a stimulating article describing 16 ways of daylighting a classroom. These are a few of many. Dark spots in classrooms are inexcusable.

Give her the right kind of light: An authority on classroom lighting, Charles D. Gibson, says that quality of lighting in a classroom is more important than quantity. The main thing is to have light without *glare*. The direct rays of the sun and raw light bulbs cause glare. Blackboards on white walls, shiny surfaces, walls between windows, and the sky itself all cause glare. How can we improve the lighting? Keep the sun out of the classroom by using overhangs

(Continued on page 16)



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(Continued from page 14)

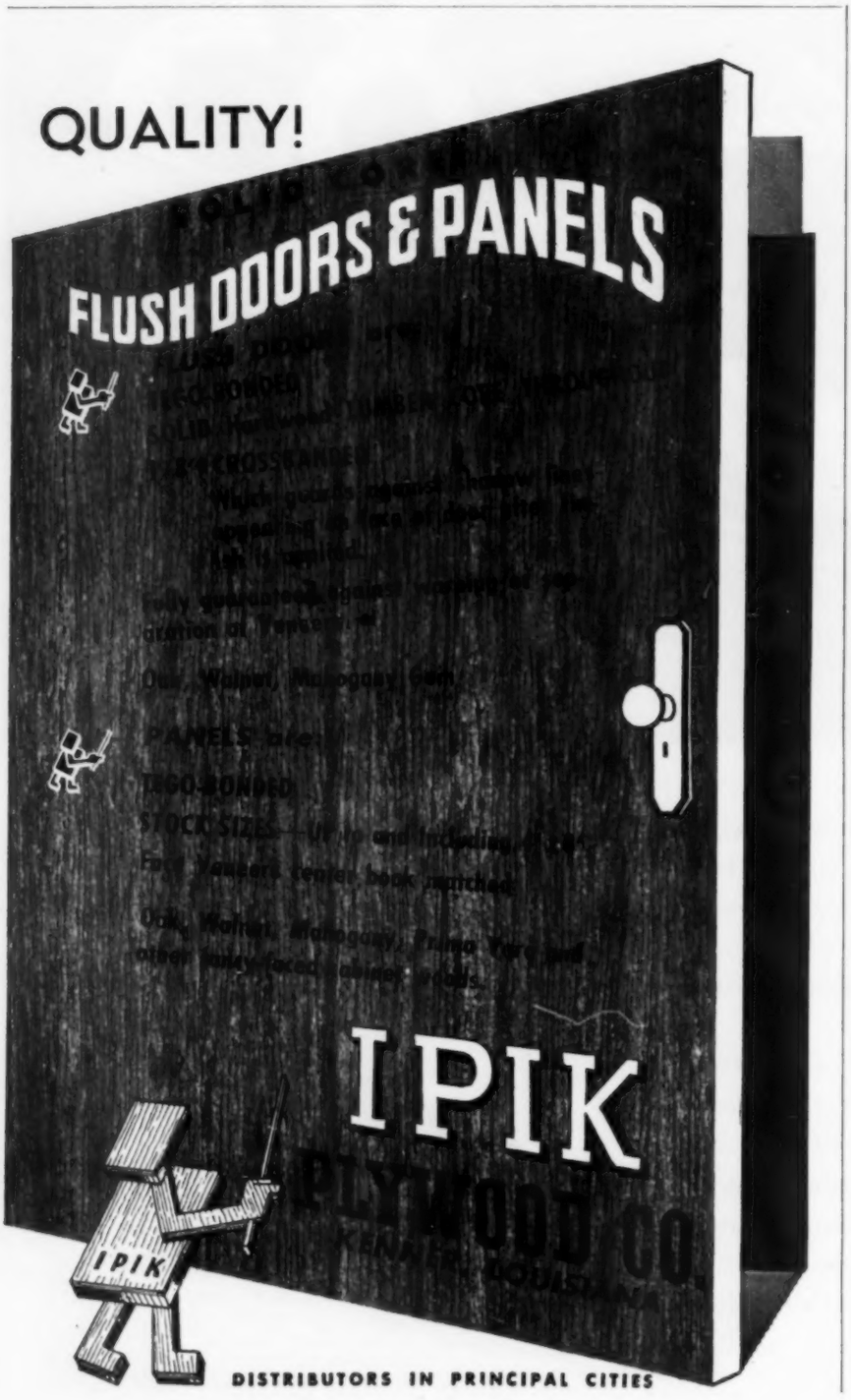
and louvers. Shield the light bulbs. Carefully select building materials and paints, and avoid strong contrasts in color and textures. Keep the sky from view.

AIR

Mary Ann must be comfortable to learn well. During the hot school months movement of air is essential to her comfort, and pure air is vital to her health. Because of high installation costs, a fully controlled system of mechanical cooling may not be feasible. Since natural ventilation is free, let's see what we can do with it.

Make use of the prevailing breeze: Every locality has a prevailing breeze which is fairly constant in both direction and velocity. Wind data can be obtained from the local weather bureau. Through careful planning, each classroom can be placed to receive the cool breeze. Care should be taken so that one group of classrooms does not block the breeze from other groups. According to a treatise on schools by W. W. Caudill, for good ventilation the distance between groups of classrooms should be no less than five times the height of the classroom.

See that Mary Ann has a movement of air around her body: To get new air into the classroom there must be openings to get the old air out. In determining the exact location of these openings, remember that there should be a movement of air around the body for comfort and that there must be a movement of air at the ceiling to remove the hot air which rises. By knowing the velocity and direction of the prevailing breeze, the number of air changes in the classroom can be calculated by a simple formula. For comfort, more air changes are needed during hot months than during cold months.



SOUND

How does sound affect Mary Ann? Loud noises within the room impair her ability to think and work. These disturbing noises affect her nervous system; she becomes irritable and her mental process is slowed down. A tremendous advancement in sound conditioning has been made during recent years. The National Bureau of Standards, to name only one source, has developed an excellent pamphlet on sound conditioning, the data of which can be adapted to classrooms. The principal considerations are the following:

Keep unnecessary sound from entering classroom: To keep sound out we must know how it comes in. It comes in through ceilings, walls, and floors, and, of course, through open windows, doors, cracks, ventilating flues, and pipes. To help remedy this, we can do three things. *Isolate* the sound source; keep the noisy elements of the school, such as the music room, away from the quiet elements. *Reduce* the sound within the room by using acoustical materials. Or *hinder* the sound from reaching the classroom by soundproof walls and floors, sound baffles, and proper placement of trees and shrubs.

Give Mary Ann good hearing conditions within classroom: To learn, Mary Ann must hear well. Every word must be distinct, free from echoes caused by sound bouncing from the walls. She should have good hearing conditions so that all of her energy can be devoted to learning. Acoustical engineers tell us that to have good hearing we must reduce the echo and loudness. We don't want words to bounce into mumbles, nor do we want our teachers to have to talk over a constant din.

(Continued on page 18)

BRIXMENT MAKES GOOD WORKMANSHIP EASIER!

When a nail or line pin is used, the hole should be plugged with mortar as soon as the nail is removed.

Nail holes are a frequent cause of leaks in masonry walls. If these holes happen to connect with voids in the head joints, water may enter, and then travel through connecting voids in the bed joint until it finds an outlet on the inside of the wall. *When a nail or line pin is used, the hole should be plugged with mortar immediately after the nail is removed.*

Nail holes frequently connect with voids in the head joints which in turn connect with unfilled furrows in the bed joint.

Water entering through the nail holes may travel through connecting voids and find an opening to the inside of the building.

Twenty years of research by many unbiased engineers have proved that "empty" joints are the chief cause of leakage in brickwork.

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Progress Report

(Continued from page 16)

FUNCTION

The classroom should be not considered a dead, structural shell. It is alive. It serves. Like the teacher, it stimulates learning. If we think of the classroom in these terms, as actually performing an active service, we can more intelligently design functional classrooms. What is the function? To serve education. There is no mystery in how to make a classroom serve education. A competent architect will work with the educator to determine the educational aims. Then he will design the classroom so that it will help fulfill these aims.

Make the space conform to Mary Ann's learning activities: The film *Building for Learning* shows many of the seating patterns encountered in a day's learning . . . the usual seating arrangement for study or drill, a circular arrangement for story telling, small grouping for committee work, close seating for motion pictures and slide talks, and other seating patterns. The classroom should be molded around these patterns. Clothes conform to the body. The classroom shell must conform to the educational activities.

Plan for equipment and materials used in teaching: A four-wall shell to keep out the weather is not enough. To discount equipment and storage of teaching materials in the design of a classroom is like forgetting about the stove or refrigerator in the design of a kitchen. Allow for efficient operation, never forgetting the children and teacher who must use the storage. Study the storage problem and equipment in terms of the curriculum. Make use of the built-ins that do not project into the teaching space.

STRUCTURE

The new concept of education advocates that courses of study are never regarded as finished products, but are always revised to meet arising needs. Shifting population causes increase and decrease of school enrollment. These affect the structure which must conform to these changes. The architect must design for future expansion, or even for future contraction (many schools have been torn down because of enrollment drops). Changing curricula, and fluctuating enrollments call for school structures that can be altered efficiently and economically. How?

Use interior walls that can be moved: Classrooms can be enlarged or reduced by merely moving an interior wall. But if that wall helps to hold up the roof or floor above, this would be a very expensive operation. Architects and engineers now have sufficient knowledge whereby they can design buildings so that the interior walls are completely independent of the main structure, and can be moved easily and inexpensively.

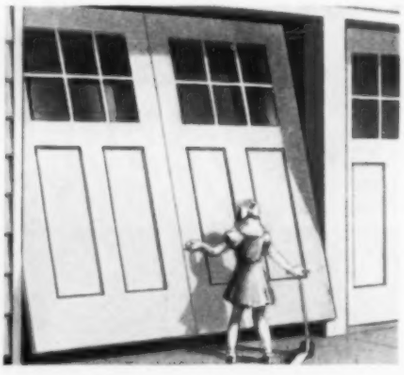
Make use of standard construction units: By using standard construction units that can be repeated, the school can grow without "growing pains." It can be easily erected or dismantled. This enables the school building to keep pace with the most drastic changes in educational needs. But still more important, by using repetitive units we can cut construction cost. These may not look like the monumental and decorative schools to which we may be accustomed, but they will be schools we can afford. Still of greater importance, they will be schools that serve each Mary Ann.

MEETING

THE NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION will hold its 35th annual convention at Hotel Cleveland, Cleveland, Ohio, December 9 and 10, 1948.

EASY...

EVEN FOR A CHILD!



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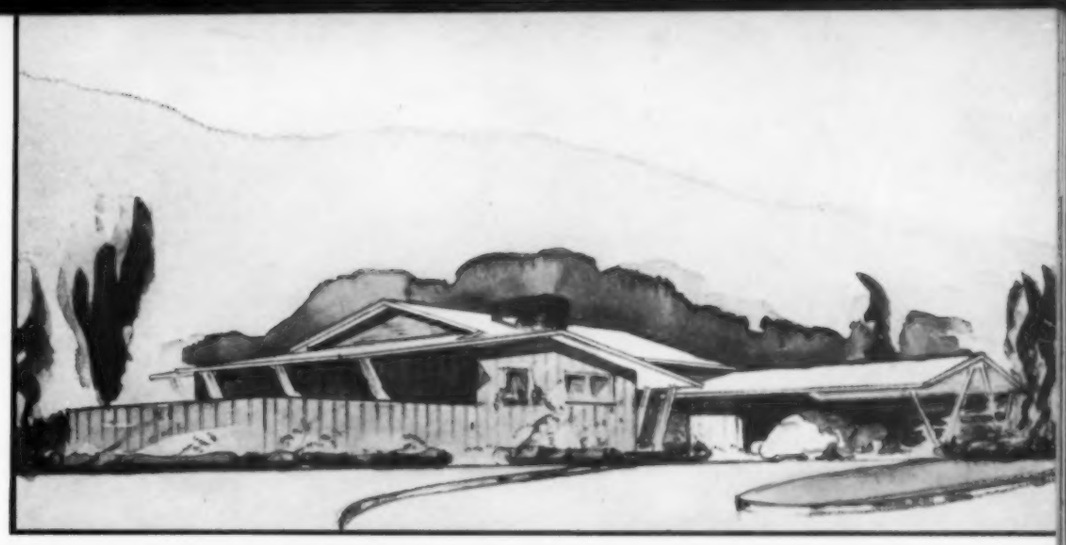


Rendering of a residence for James Berry by Robert E. Faxon.

RESIDENTIAL DESIGN

PA

Fields of Practice

What about residential practice? Is it a profitable field? How do those who are most successful in it conduct their offices? To help answer these and other pertinent questions, PROGRESSIVE ARCHITECTURE asked several leading architects—among them, all of those whose work is represented in this issue; and Francis Joseph McCarthy of San Francisco, and E. H. and M. K. Hunter of Hanover, New Hampshire—about their experiences in the field. Both in the house presentations themselves and on subsequent text pages, we have collated and attempted to interpret their answers.

The field of house design holds extremely wide interest. Another recent survey by this magazine indicated that 73 percent of big firms specializing in important commercial work also accept residential commissions. Furthermore, residential design constitutes one of the liveliest fields of architectural experimentation, incorporation of new design techniques and details which later affect the entire field of architecture. Not the least significant thing about residential work is its obvious social importance in a democratic society.

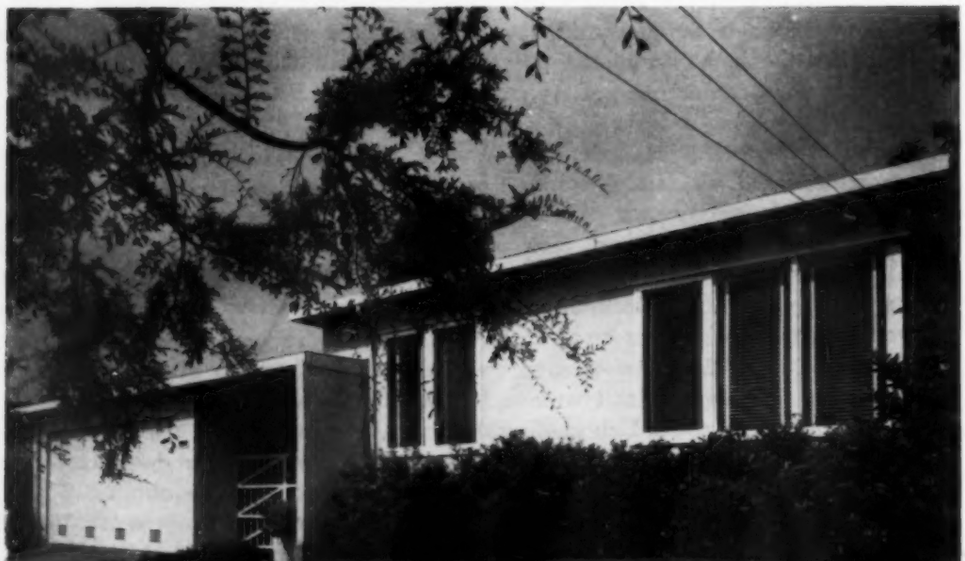
A few of the highlights from our survey: Although the group queried is normally associated with residential work, it was interesting that two-thirds of them consider house design simply part of a general practice; and the remaining third, while calling houses the main part of their practices, tell us they accept other types of work. All but two find residential practice profitable; one frankly admits that he usually loses money on house design. If there is any one secret to a successful operation, it would appear to be in a small staff, with much of the work handled by the principal involved. All of the firms queried try to do a complete job of detailing on working drawings. Most offices still write a full, traditional specification, though there seems to be a tendency toward shortening the usual form, and a few are experimenting with streamlining. None is successful in getting—and few consider desirable—a retainer fee. As to construction costs, the average today appears to be about $12 per square foot, although reports of recent experience range from an impressive low of $8 to an even more impressive high of $46! Some of the ways in which various offices have been able to effect savings are discussed later on.

These are merely a few summary comments. Detailed discussion of these points as well as specifics on numerous other questions will be found on subsequent pages.

FRONT DOOR from entrance court—a sheltered outdoor sitting room for cold days.

HOUSE, OAKLAND, CALIFORNIA

CARLTON ARTHUR STEINER, Architect



Roger Sturtevant Photos

STREET FRONT. Some of the things the Davidsons particularly like: rooms all on one floor arranged to minimize foot travel; good separation between rooms ("noises from the living room or study are not heard in the bedrooms"); accessibility of front door from kitchen or bedrooms without need of passing through living room; big windows that "give lots of light and air and are easy to clean"; U-shaped kitchen scheme that "makes the room really work"; furnace room convenient for drying clothes; planned shelving in storage room; garage reached by covered walkway.

ENTRANCE GATEWAY. Garage, at left.

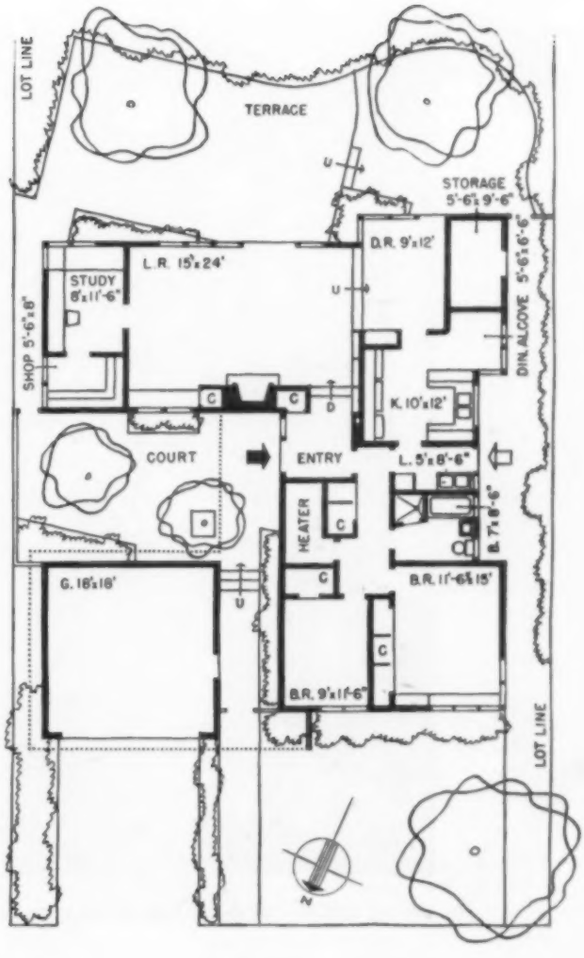
COURT, looking out from front door.

A remarkable degree of privacy provided on an average in-town site.

Despite the practical difficulties most architects find in residential work, there are compensations. Several of the men answering our questionnaire about this field of practice mentioned the satisfaction that comes from working with clients who are strongly interested in the design problem, and the immediate personal reaction which such clients provide. For instance, the Donald D. Davidsons, for whom Mr. Steiner designed this home, say: "We'd want the same house over again . . . We have often said that the money we spent on this house was put where it really pays dividends—into those things that make everyday living more pleasant, rather than on (seldom used) basement or attic space, meaningless ornament, etc."

PROBLEM: To design a small house with outdoor living terraces; sun in all rooms at some time of day (kitchen and bedrooms in morning; rest of house later in the day); Mrs. Davidson, a piano teacher; Mr., a radio enthusiast.

SOLUTION: Living room placed at rear, away from the street; bedrooms in wing toward front; garage in other front corner, providing secluded entrance patio.



STEINER

Carlton Arthur Steiner studied architecture at the University of California, earning both A.B. and M.A. degrees. Subsequently he worked in numerous West Coast offices and with Vernon DeMars with the Farm Security Administration. His own office was established in 1943. Currently he is engaged on commercial work in the office of W. D. Peugh in San Francisco, and he also teaches design at U.C.'s Department of Architecture.

HOUSE, OAKLAND, CALIFORNIA

In Oakland, the weather is very often sunny and mild, but it can be windy and chilly. To provide comfortable outdoor living, whatever the weather, there are separate terrace areas. The large living terrace on the south is for use on fine days; on cold days, the entrance court, protected on three sides by walls of the house or garage and on the fourth by a fence, becomes a secluded outdoor sitting room. "The paving," Mrs. Davidson comments, "is a good surface for tables and chairs and isn't harmed by children's play . . . also, there is little gardening necessary." Placement of the living room at the rear allows the owners to pursue their hobbies (music; radio) without bothering neighbors or interference from street noises.

LIVING ROOM. The dining room is raised two steps above the living-room level. Terrace doors, left.

PAVED TERRACE for outdoor living in fine weather. Flush redwood boards are the exterior wall surface.

KITCHEN, from dining alcove through into laundry.

ENGINEERING OUTLINE

CONSTRUCTION: Concrete foundations. **Framing:** wood throughout. **Walls:** (exterior) 1" x 10" flush joint, rough shiplap redwood; (interior) precolored, sand finish stucco, unpainted except in bath, kitchen, and laundry, where enamel on putty plaster was used. **Floors:** oak plank (flush joint with V groove) generally; linoleum on plywood base in kitchen, laundry, and bath. **Roof:** tar and gravel over sheathing. **Ceilings:** 3' x 3' insulation board, ½" thick, with wood battens. **Fenestration:** pine casements or fixed sash; double strength glass. **Partitions:** wood stud. **Doors:** 1¾" flush panel, hollow core.

EQUIPMENT: Heating: gas-fired furnace; warm-air system. **Electrical:** knob and tube wiring; flush ceiling light fixtures.

Fields of Practice

RESIDENTIAL DESIGN

DOES IT PAY ?

Questions addressed to a number of architects, asking whether residential work is a paying proposition and if the fees obtained allow real thought to be given to each job, brought answers varying from a simple "yes" to a statement that "depending on the client, we just break even or lose money on residential work." The average answer seems to be that it is "not too profitable." Several indicated what must be a general method of operation—that other work in the office pays for the office overhead, which could not be carried by house design alone. As Clifford-Lindstrom Associates (see house, pages 77-80) put it: "We prefer to depend on commercial work to carry office expenses so that we can be fairly selective in the residential work that we take on."

One thing is clear, however. Many architects want to do residential design and are determined to find ways to make it pay. Henry Hill (see house, pages 63-68) comments that his practice is predominantly residential, because he finds this work "stimulating and exciting. . . I like the personal contact." However, he would not want to limit himself to this field exclusively. And William Wilson Wurster of the Wurster, Bernardi & Emmons firm (see house, pages 73-76) echoes this thought, going on to say: "I have a belief that specialization limits the excellence of the product." Whether by design or by accident, it appears that there are few, if any, exclusive "specialists" in this field.

FEES ?

What about remuneration? In view of a growing tendency to utilize a cost-plus method of fee arrangement in commercial work, it is perhaps significant that almost all of the men we questioned depend still on a percentage-of-construction-cost method of charging for their services. Most of them receive 10 percent as a minimum, with special jobs and alteration work demanding more. One, however, finds he can do some work at 8 percent. One sometimes arranges for "three times drafting costs" and finds this satisfactory. Another does "quite a bit" of work on a fee based on actual cost, plus partners' salaries for time spent on the job, plus one-third of these two items. Yet another, charging two times drafting costs (with engineering consultants at cost plus 20 percent) plus $6 an hour for his own time, reports that this usually results in a final charge to the client running "within 1 to 2 percent of what the percentage billing would be."

The question: "Do you try to get a retainer fee before starting sketches?" brought a 100 percent "no" answer. One architect asked us a question in return: "Can you tell us how to do it?"

OFFICE ORGANIZATION ?

It seems impossible to carry the constant expense and the overhead of a large office and still make residential practice profitable. When large offices do accept small house jobs, they often set up a separate organization just for this work. The usual practice seems to be largely a personal one, with the principal and one man carrying a job. Francis Joseph McCarthy describes his procedure thus: "I am at all client conferences, but I like to have one person in the office following the job through, and that person sits in on client conferences. . . After the preliminaries are approved. . . the same person carries through the working drawings and, if necessary, with the help of others in the office, he blocks out the specifications, and I polish them up."

BUDGETING TIME ?

Many efficient offices find it necessary to budget time very carefully, from preliminary conferences through job supervision. P/A editors were curious about how this applied to such personalized design as residential work. Henry Hill says he budgets his time "as much as possible"; another man writes that "we talk about it." Preliminary conferences are admittedly difficult to control and apparently account for much of the unprofitableness in this field.

FRONT OF HOUSE, bedroom wing, left. Natural finishes help the house blend unobtrusively into its heavily wooded site.

HOUSE, ALEXANDRIA, VIRGINIA

CHARLES M. GOODMAN, Architect

A house expertly wedded to a hillside site and schemed to cope with a variable climate.

In efforts to lower building costs Mr. Goodman reports that in residential work, which he does as part of a general practice, he has had "some success by simplifying the structural shell, mechanical arrangement, and milled members." In this hillside house for the Eric Sevareids, for instance, "all sash, glass doors, interior millwork, and interior cabinetwork was done on the site with a portable saw . . . Our job cost per sash unit, etc., was lower than the mill prices bid."

PROBLEM: To dispose as much of the main living area as possible on one floor, on a steep hillside site.

SOLUTION: Main floor on a hillside platform with full-height basement area, court, deck, porch, terrace, and play court for outdoor living in almost all weather.

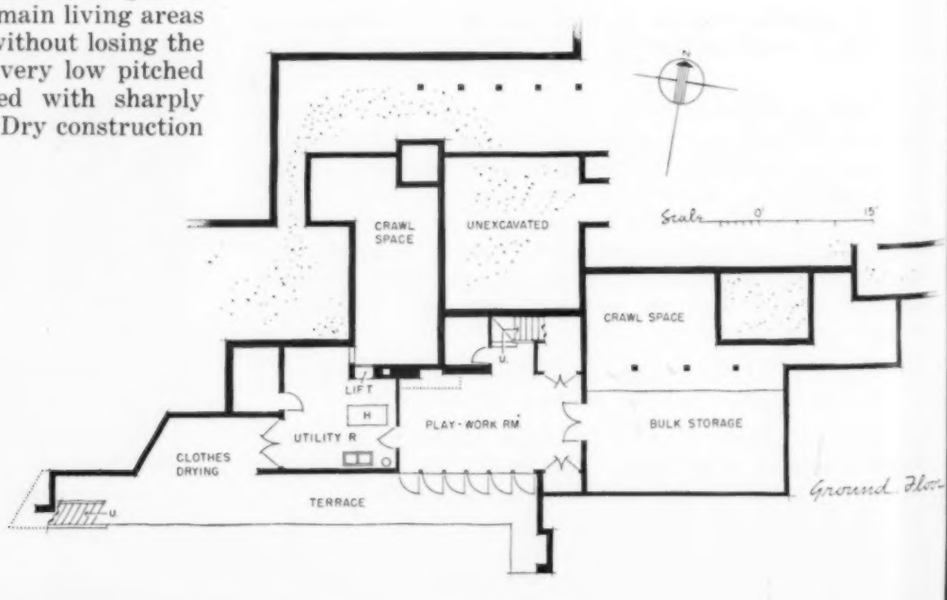
Photos: Rodney McCay Morgan Photos

ENTRANCE COURTYARD. Flagstone terrace.

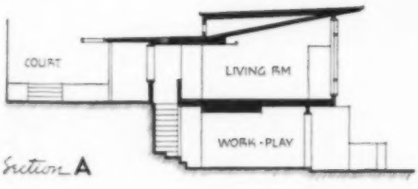
VIEW FROM DOWNHILL. Children on landing of stair to deck, left; living room windows, right center; owners' bedroom bay beyond.

"My approach to the planning," Mr. Goodman comments, "was simply one of disposing as many of the living spaces as was economically feasible along the side of the hill and oriented to the southeast, which fortunately was the view side as well as the most desirable exposure." Lower floor masonry walls act as retaining walls for the entrance court; the frame was arranged into structural sections of simple spans, with all roofs designed to pitch toward a common watershed. ("One line along the forecourt side of the house drains all downspouts.") In the roof construction, to gain a substantial air space over the main living areas (see section, opposite page), without losing the lightness of structural effect, very low pitched roof joists were used coupled with sharply sloping 2″ x 4″ ceiling joists. Dry construction was used throughout.

HOUSE, ALEXANDRIA, VIRGINIA

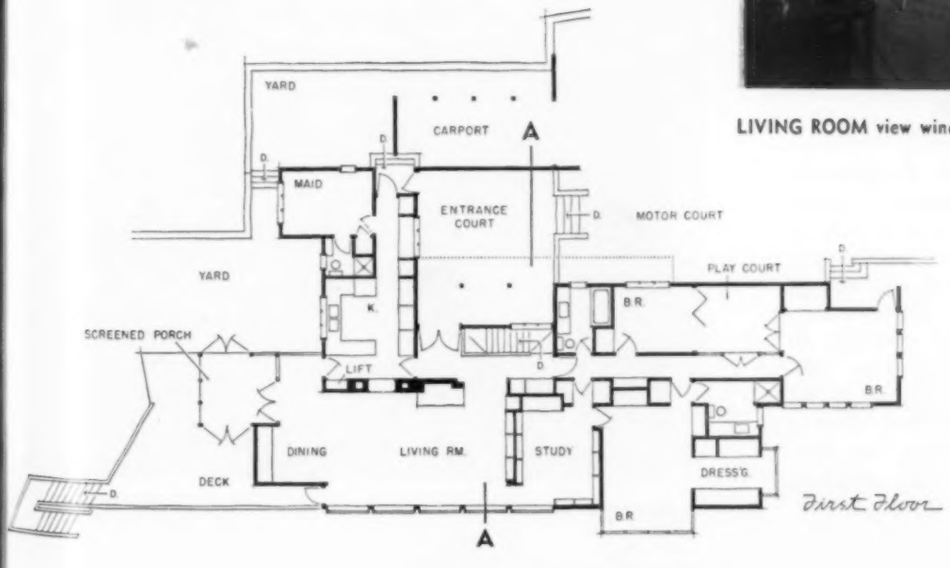


LIVING ROOM toward dining end, deck door (left), and screened porch (right-hand door).



Section A

LIVING ROOM view window wall. Note all wood surfaces.



First Floor

DETAIL OF SOUTH WALL. Living room upstairs, play-workroom below.

HOUSE, ALEXANDRIA, VIRGINIA

The architect points out that the downstairs room is "not the kind of basement I have always frowned upon, namely, a hole dug in the ground which is always more troublesome than its space value, but a space cut out of the side of a hill, opening on to its own terrace and with its southeast wall opening to the magnificent view of the Cameron Valley . . . one of the most popular rooms in the house, even being used for formal dinner parties on occasion. A dumb-waiter was provided in the utility room from the kitchen above."

SCREENED DINING PORCH, at left of roofing-slate-surfaced deck.

ENGINEERING OUTLINE

CONSTRUCTION: Concrete footings; cinder-block foundations; brick exposed walls. **Framing:** standard fir wood stud; fir floor and roof joists. **Walls:** (exterior) 1" x 4" redwood shiplap siding applied horizontally over asphalt-coated sheathing board; (interior) ¼-in. plywood with gum or white oak surface veneer; redwood, cypress, and knotty pine boards. **Floors:** random white oak over waterproof plywood generally; linoleum in kitchen and baths; cement and 12" x 12" hollow terra cotta tile (smooth face up) in basement; roofing slate deck and flagstone entrance court and porch. **Roof:** built-up roofing over waterproof plywood sheathing. **Ceilings:** 9" x 9" insulating tile. **Fenestration:** white pine sash with crystal sheet and plate glass. **Insulation:** acoustical (see "Ceilings"); thermal: glass-wool blanket type in roof construction. **Partitions:** fir studs; plywood surfaces. **Doors:** flush panel, gum and pine.

EQUIPMENT: Heating: forced warm-air system with humidifier unit; automatic controls. **Lighting:** flexible armored conductor; dull chrome flush ceiling boxes (incandescent); fluorescent tubes in built-in troughs. **Plumbing:** copper water pipe; cast-iron soil pipe.

OWNERS' BEDROOM. Hinged casement units allow full opening of window area.

DINING PORCH, looking through to deck and view beyond.

GOODMAN

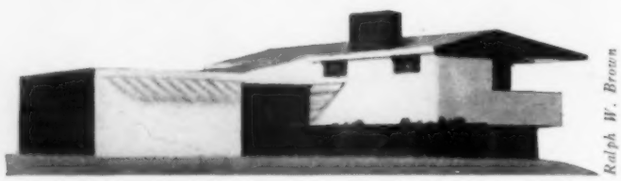
Charles M. Goodman, New York City born, attended the University of Illinois ("where I did not study architecture") and the Armour Institute of Technology, where he walked off with numerous prizes and awards. Called to Washington in 1934 as designing architect in the Public Buildings Administration, he produced some excellent contemporary structures, among them the U. S. Post Office in Evanston, Ill. His own practice started in 1939, was interrupted by service as Head Architect for the Air Transport Command (1942). He has been back in practice since 1945, and "everything is peacefully hectic."

Fields of Practice

RESIDENTIAL DESIGN

PRESENTATION METHODS ?

When a number of architects were questioned about the methods they use to present suggested designs to their clients, only one reported that a model was usually made. The model presentation is admittedly the most satisfactory way to explain forms and uses of materials to laymen but, as one firm puts it, "the model is not economically feasible for small jobs." Most firms, including the model-makers, make some sort of presentation drawings, and these range from "small scale freely drawn plans and elevations followed by renderings with supplementary pen-and-ink sketches of most details" (Clifford-Lindstrom Associates) to "black-and-white perspectives showing various views" (Charles M. Goodman; see house, pages 57-61) to black-line crayon-colored prints, usually of plot plan, floor plans, perspective, and/or elevations (several firms reported this method).



Presentation model made by architects E. H. & M. K. Hunter.

Ralph W. Brown

SPECIFICATIONS ?

A full specification is still the majority rule in the offices we questioned—though less than a two-thirds majority. Many architects report that they use an "abbreviated, but not entirely streamlined" form, a "simplified" version, or, as Henry Hill describes his procedure: "I like to hold specifications to a minimum and show everything possible on the drawings." Mr. McCarthy, among others, has the typed specs bound in with the drawings, which has the added advantage that "when on the job you find them with the drawings rather than thrown away in a nail keg."

DETAILING ?

Francis Joseph McCarthy attaches specifications to prints of drawings.

SUPERVISION ?

Without exception, all the reporting architects tell us that they do complete detailing in their drawings—though, obvious exceptions are instances where stock items are specified, or, as one office comments: "We often do just a general view of kitchen cabinets, so that each mill may suggest its own details on the shop drawings."

ONTRACT FORMS ?

It was a little surprising to discover that half of those queried said they did not use standard A.I.A. contract forms; one reported he used them "occasionally" although he did not find them "entirely satisfactory"; and the remainder said they usually did use the standard forms—although with minor variation better to suit local conditions.

Complete supervision is still the accepted method of seeing a job developed to realization; no exceptions here. Mr. McCarthy takes the trouble to report that "a long time ago we did a house without supervision, and we will never do it again. . . Supervision isn't because contractors are going to cheat. . . However, their interest is only their own (plumber concerned with plumbing, heating man with heating, etc.). None of them sees the over-all picture, and if someone isn't there to catch things when they are happening, they will do it the easiest way."

OUTDOOR LIVING ROOM, enclosed by the house itself; main bedroom wing, on the far side of the pool.

HOUSE, ROSS, CALIFORNIA

HENRY HILL, Architect

Rare integration of all elements—site adaptation, architectural design, structural concept, landscaping, and furnishing.

The excellent construction and finish of this hilltop house is a reflection of the way Henry Hill attends to the details as well as the larger aspects of design. "I feel most strongly that complete supervision is essential," he says. "It is during construction that a client's money is being spent, and it is my responsibility to see that it is spent properly." The presentation of this house, coupled with the owners' delight in their home, is a happy illustration of professional responsibility successfully discharged.

PROBLEM: To provide, on a hilltop with a panoramic view to the southwest, accommodation, privacy, and much outdoor living space for Mr. and Mrs. Arthur Dettner and their three sons.

Roger Sturtevant Photos

VIEW SIDE OF HOUSE. Sheltered bedroom terrace, at left.

SOLUTION: A scheme wrapped around a central outdoor living room, complete with swimming pool; walls of windows to make the views an integral part of the living surround; terraces in and out of the sun; bedrooms separated for privacy.

1

2

3

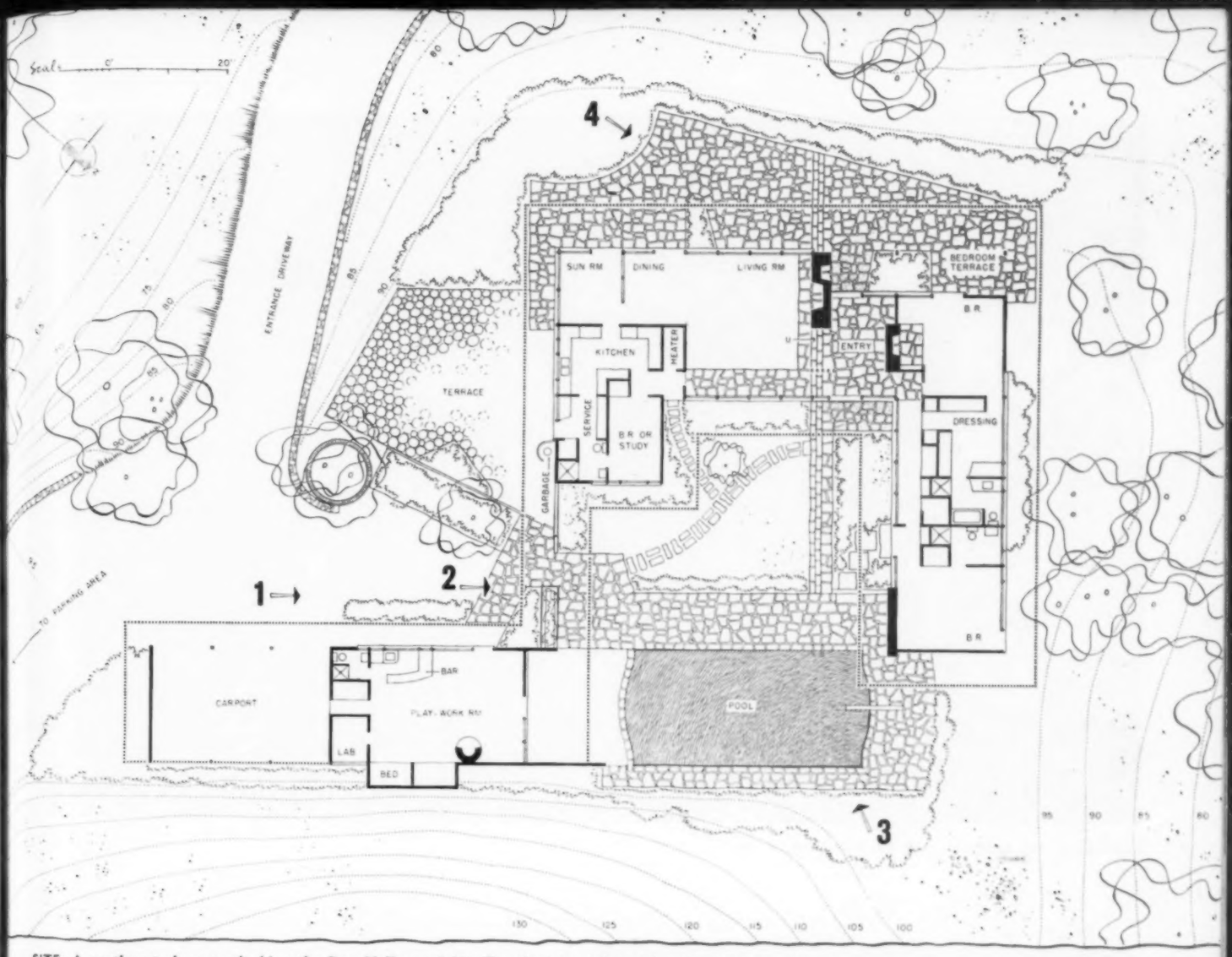
HOUSE, ROSS, CALIFORNIA

Prevailing breezes from the northwest explain the sheltered location of the swimming pool within arms of the house. A requirement was that there should be provision for children's activities away from the house; hence the play-work-room (alongside the carport) with a radio laboratory. A multipurpose room occurs in the north corner of the southeast wing of the house—a room opening out to the living court that may be used as a study, a bedroom, a guest or maid's room. "It was my intent," Mr. Hill reports, "to separate the various activities as much as possible and at the same time maintain the feeling of intimate contact with all areas of the site." An interesting element in the site division is the row of three steps that occurs northwest of the pool. Inside the house, these three steps lead up to the bedroom wing, separating private from family activity areas. They occur again on the view front, separating the big terrace from the sheltered bedroom terrace. While changing floor levels thus define use areas within the house, the ceiling level remains constant.

1. View of house from driveway. Dining-sun-room, left; entrance to living court, straight ahead; play-workroom-carport structure, right.

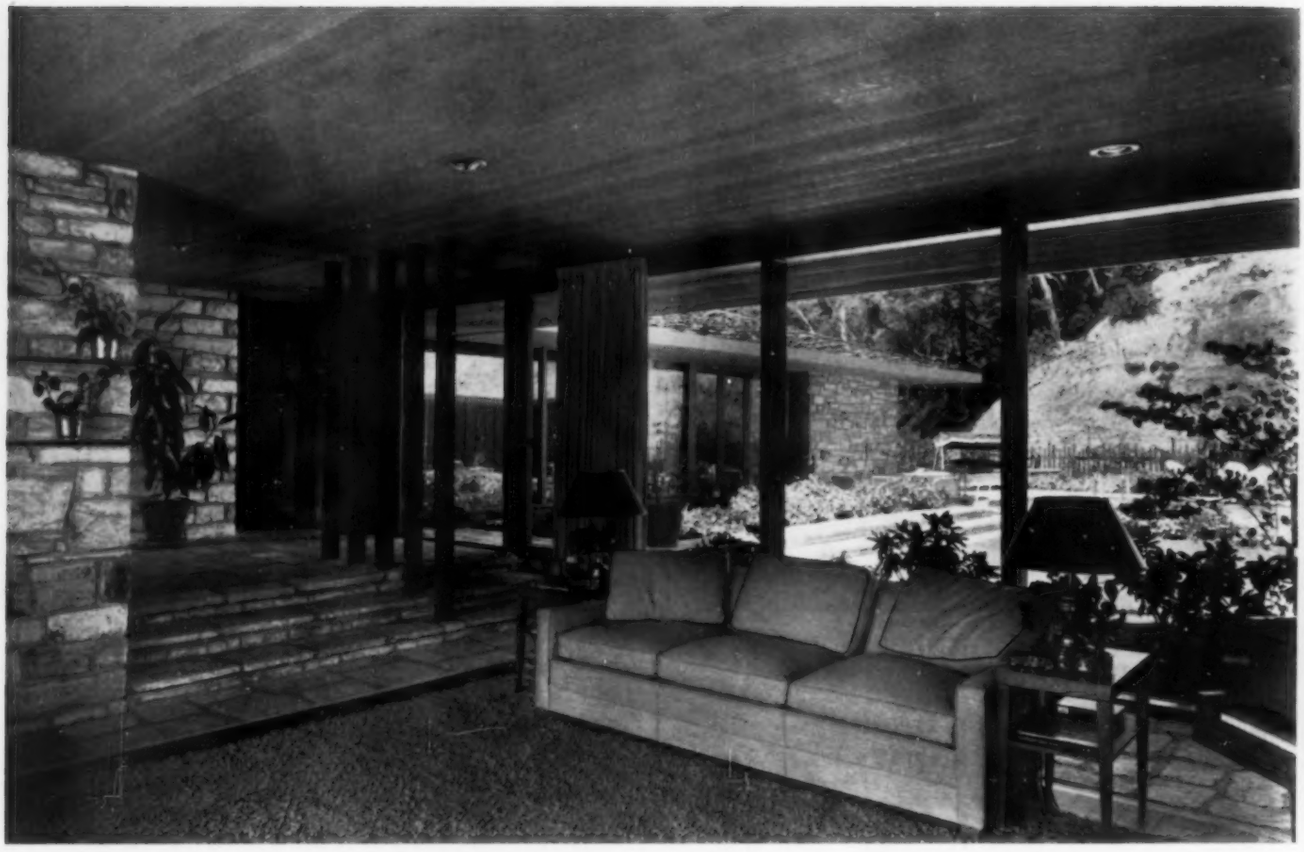
2. Gateway into living court, and so via the path to the front door.

3. View of house from court; entrance gateway in wall at left. Note how parallel glass walls allow view right through the living room.



SITE: A southwest slope overlooking the Ross Valley and Mt. Tamalpais; another valley view to the southeast.

4. SOUTHWEST TERRACE. Raised, bedroom terrace in background. Wood, stone, and glass properly used and skillfully organized into convincing architecture.



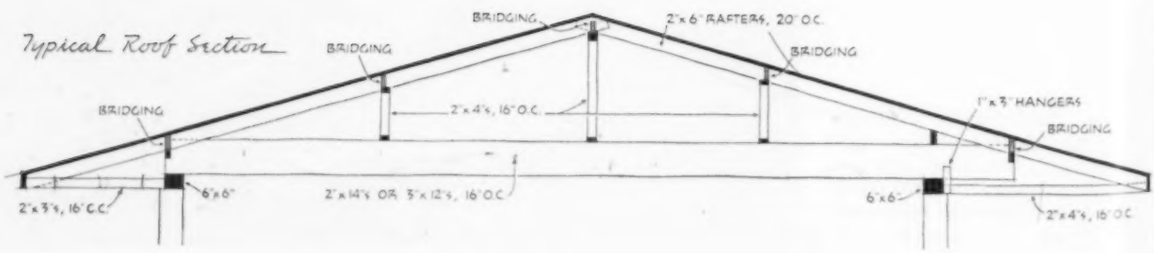
LIVING ROOM, courtyard side; bedroom wing at left.

HILL

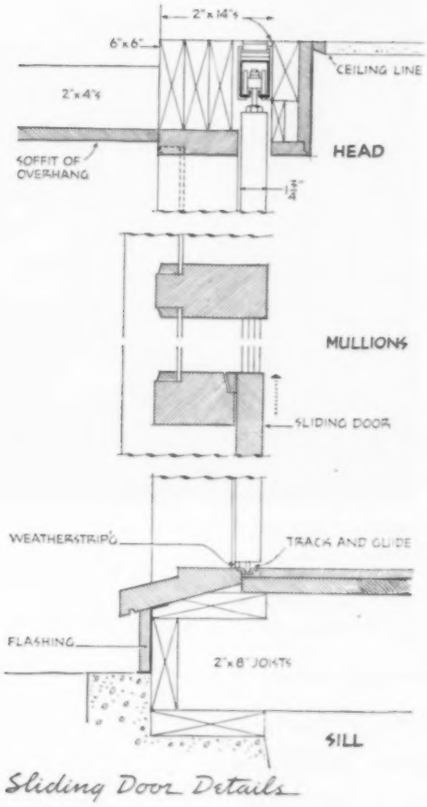
Since we printed the biographical note on Henry Hill (August 1947 P/A; page 17), he has established his independent practice in San Francisco.

HOUSE, ROSS, CALIFORNIA

Design continuity is more than a theory in the Dettner house. The continuous ceiling planes; the extension of indoor living areas to include both near and distant views of nature; the stone paving that enters the house as continuing hearth and floor lines, carries up in the fireplace breast, and continues on out to the terrace on the other side, are all consciously schemed to produce the harmonious result evident in the photographs. And it is as pleasant as it is rare to present a house where structure, landscaping, furnishing, and total concept have been so thoroughly integrated. The architect was also the landscape architect.



LIVING ROOM, with view across the valley to Mt. Tamalpais.



Sliding Door Details

DINING-SUN ROOM, with room-height sliding panels.

HOUSE
ROSS, CALIFORNIA

OWNERS' BEDROOM, with doors to private terrace, right.

ENGINEERING OUTLINE

CONSTRUCTION: Concrete foundations. **Framing:** select fir (portions of walls are Carmel stone masonry). Wood roof framing and floor joists. **Walls:** stone, or frame surfaced (exterior) with 1" x 8" re-sawn, open-joint redwood applied vertically over sheathing, and (interior) with redwood or pine. **Floors:** stone; oak; tile; linoleum. **Roof:** ¾" x 24" handsplit cedar shakes. **Ceilings:** re-sawn pine; gypsum-core composition board. **Fenestration:** wood casement sash; plate glass. **Insulation:** 4" wool-batt type in ceiling. **Partitions:** wood studs, surfaced with redwood, pine or gypsum filled composition board; tile in master bath. **Doors:** flush, wood.

EQUIPMENT: Heating: gas-fired hot air; automatic controls. **Special equipment:** electric stove, refrigerator, garbage disposal unit, and home freezer; kitchen ventilating fan. **Plumbing:** copper hot-water piping.

DRESSING ROOM

BATHROOM

Fields of Practice

RESIDENTIAL DESIGN

Almost all of the architects questioned by PROGRESSIVE ARCHITECTURE report that they do not have any problem convincing their clients to accept design which is not in a traditional "style." Most of them simply say that clients come to them originally on the basis of work of theirs they had already seen: "They come to us already 'sold'," says Mr. Goodman. One firm reports that it used to do considerable missionary work —"talks to women's clubs, exhibits, etc. . ." but this seems to be increasingly unnecessary.

SELLING GOOD DESIGN ?

As to competitive bidding versus the cost-plus type of construction contract, consensus is that "both have their advantages." Mr. McCarthy, for instance, says "I would not do a small job without a lump-sum contract when the client is borrowing money and his means are definitely limited. However, on jobs where clients' means are not limited and we can pick the contractor—one we are sure does not pad or relax on the job—I would prefer a cost-plus contract." Unqualified opinions that a fixed bid is the only way to handle construction were evenly balanced by opinions that cost-plus with a guaranteed maximum is entirely satisfactory—"any savings below the maximum being shared equally by the contractor and owner," as Henry Hill arranges it on the infrequent occasions when he uses this method; his preference is definitely for the fixed-bid approach. Another firm that prefers the fixed-bid system qualifies this to say "obtained either through competition or from one firm." None of the firms queried do any contracting themselves, though one comments that "a great deal of expediting" is required on its part.

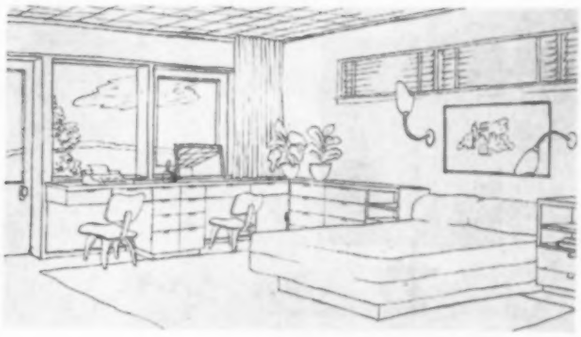
CONTRACTING ?

Stock plans and their sale are equally frowned upon. One firm admits that stock plans of theirs are being marketed through a home magazine; another says they do stock-plan work "only slightly," but all agree that it is a poor way to obtain good architecture.

STOCK PLANS ?

Current residential costs were quoted all the way from $8 a square foot (Henry Hill says he has several houses let on contract at this price) up to a luxury job that figured at $46 a square. The average would seem to be close to $12. Methods different ones have found for cutting costs are of more than passing interest. Mr. Goodman finds that "simplification of the structural shell, mechanical arrangement, and of milled members" helps keep costs down. On the other hand, Clifford-Lindstrom Associates remark that "costs drop when flush surfaces are eliminated, when plaster and standard pitched roofs are used . . . They go up where dry-wall construction, set glass, and shed or flat roofs are involved." This same thought appears to be echoed somewhat in Mr. McCarthy's testimony: ". . . We have to do things that are understood by the contractors and with materials and methods that are more or less standard. The minute that we go into special construction or new construction methods, our costs climb, and at today's prices, very few residential clients can afford the luxury of much experiment."

COSTS ?



Clifford-Lindstrom Associates find line perspectives help to visualize interiors.

Some obvious conclusions can be drawn from this survey of offices doing good residential work:

★ The field is not one of large or easy profits, and losses can readily be incurred.

★ Most firms are not overly efficient in financial arrangements, time budgeting, or time-savers such as abbreviated specifications.

★ Many and long preliminary conferences with the client eat into possible profits, yet the cost-plus fee arrangement is not common.

★ Easy-to-understand presentation drawings are necessary; models are useful, but too costly in this field.

★ Among firms doing outstanding work, contracting, stock plans, and omission of supervision are frowned upon.

★ Unfamiliar construction and detailing run up costs quickly; yet rationalized structural and mechanical systems result in savings, with the right contractor.

SOUTH WALL of windows transmitting sun and heat to the interior radiator wall. Overhang screens summer sun.

HOUSE, TUCSON, ARIZONA

ARTHUR T. BROWN, Architect

An ingenious adaptation of the solar principle to the brilliant, dry climate of Arizona.

BROWN

Arthur T. Brown trained at Tarkio College and Ohio State University (B.S.Arch.). Six years in the office of David Adler (Chicago); one year with the architectural department of the Century of Progress Exposition; and three years in the office of Richard A. Morse in Tucson preceded a three-year partnership with Mr. Morse, and the later establishment (1942) of own office. Chief work: houses, housing projects, schools, shops, churches.

George Geyer Photos

STREET FRONT. Flagstone veneer; white built-up roofing.

PROBLEM: A simple, unpretentious home for a young couple with one child; a flat urban site, with the street on the north; the wish to gain the advantages of solar warmth, at the same time coping with the glare of intense sunlight.

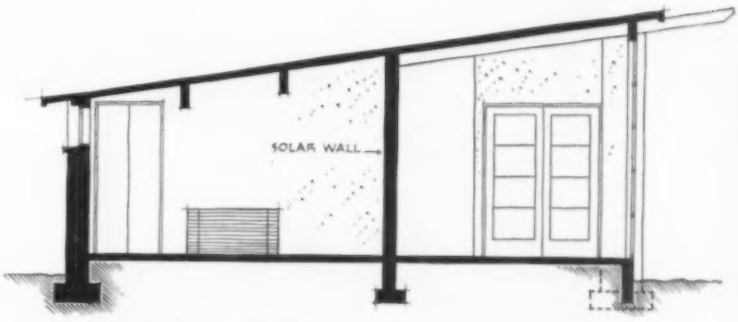
SOLUTION: Alignment of all living rooms along the north wall (high windows for privacy) but opening them out, by means of louvered doors, to a full-windowed porch and passage along the south, garden front; the latter acting as a solar heat-storage room, the heat to be used (by opening doors) in the living rooms as needed. The interior east-west wall of concrete block is painted a dark, almost black, green and acts as a radiator. To prevent heat loss, the floor (which also becomes a radiant heater) is completely insulated from the foundation by ½ inch of asphalt-permeated rigid insulation.

FRONT DOOR, left; kitchen door, right.

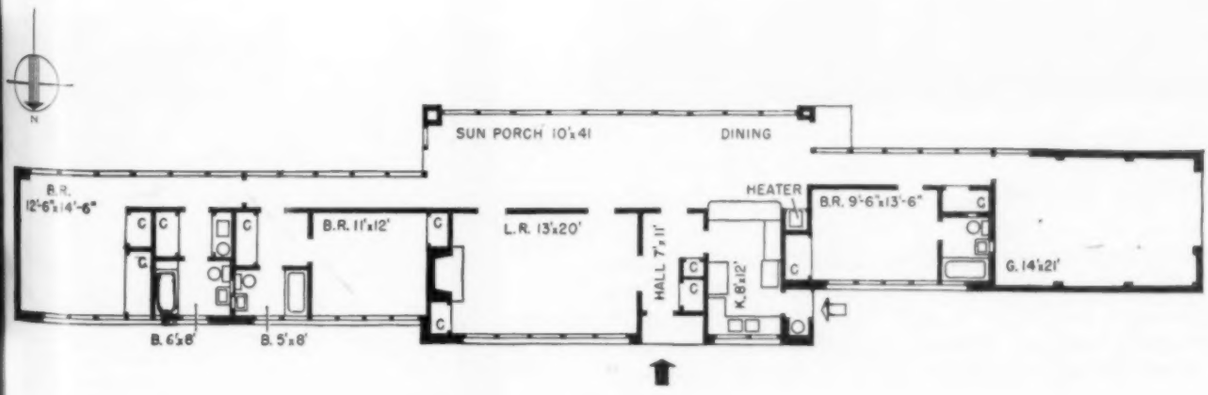
ENGINEERING OUTLINE

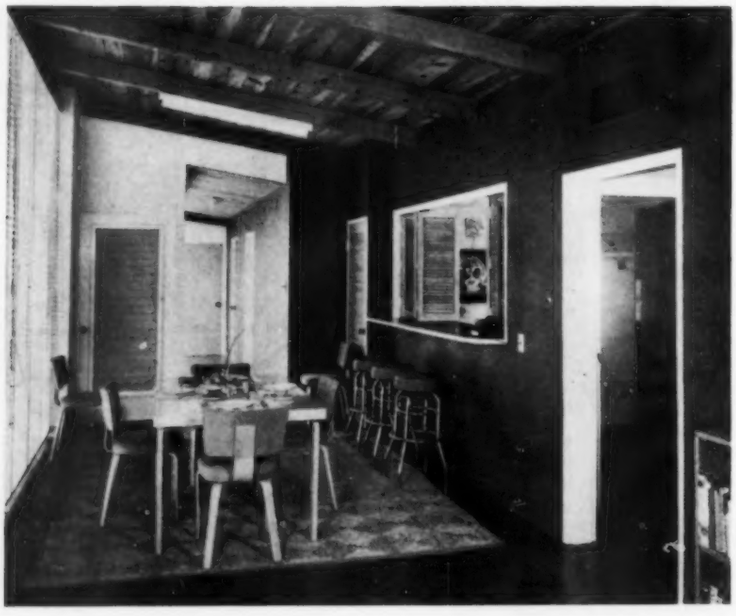
CONSTRUCTION: Concrete foundations; slab floor. **Framing:** 2" x 4" wood stud; wood roof beams and rafters. **Walls:** (exterior) stone veneer or stucco and (interior) plaster, painted; interior solar wall of cement block. **Floors:** cement. **Roof:** white-surface built-up roofing over insulation layer, over 2" fir sheathing. **Ceilings:** exposed wood roof construction. **Fenestration:** louver-glass units on north wall; specially fabricated metal sash (in solar wall) with 3/16" crystal glass. **Insulation:** 1" rigid board in roof construction. **Partitions:** stud, plastered, in general; interior solar wall, cement block, plastered and painted dark green-black. **Doors:** (exterior) wood jalousies; (interior) louver doors of white pine or flush panel maple.

EQUIPMENT: Heating: two gas-fired, forced-air furnaces; evaporative type coolers use same ducts; automatic controls. **Lighting:** fluorescent, used with metal fins. **Special equipment:** sprinklers; garden floodlights.



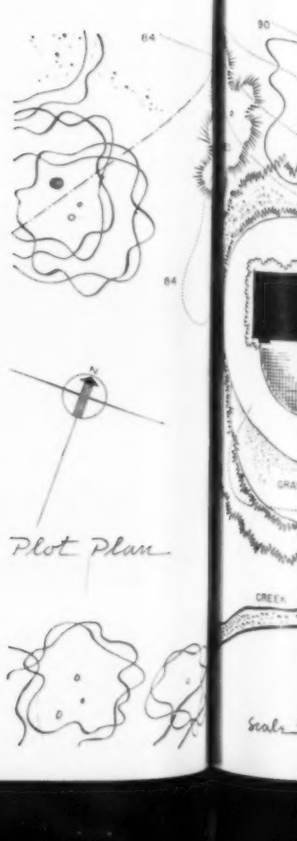
Typical Cross Section





HOUSE, TUCSON, ARIZONA

LIVING ROOM: fireplace end (top); dining end of porch (bottom). On a clear day, there is no need for furnace heat after 9 A.M., and the house is still comfortable at 11 P.M. without artificial heating. Excess warmth is drained out of northern windows and ventilator units at top of glass wall.

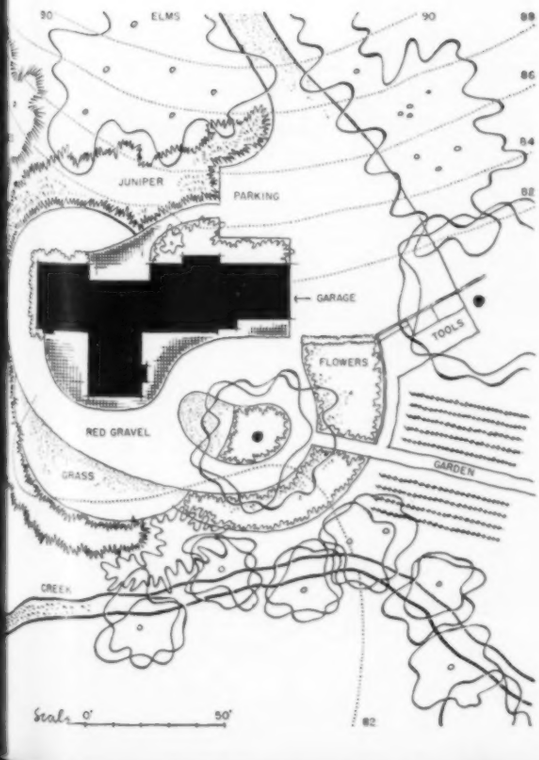


Roger Sturtevant Photos

UTH FRONT. A magnificent live-oak tree was carefully preserved and considered in working out the design.

ATHERTON, CALIFORNIA

WURSTER, BERNARDI & EMMONS, Architects



A modern house echoes a familiar tradition without compromising progressive design standards.

Although houses by Wurster, Bernardi & Emmons are known throughout the world, most readers are aware that the firm does not make residential practice an exclusive specialty. It is interesting to learn from Mr. Wurster one of the reasons why this is so: "We have a belief that specialization limits the excellence of the product." Whether or not this has universal application, the house shown here is surely evidence that this firm, whose fame grew from its early residential work, has never lost its skill in this category.

PROBLEM: A "spacious" small house on an oak-wooded site sloping down to a creek and a view of hills to the south. Shelter from west wind, a factor; outdoor living to be a feature.

SOLUTION: Large rooms, related to provide privacy for all areas; opening of most rooms to south or east.

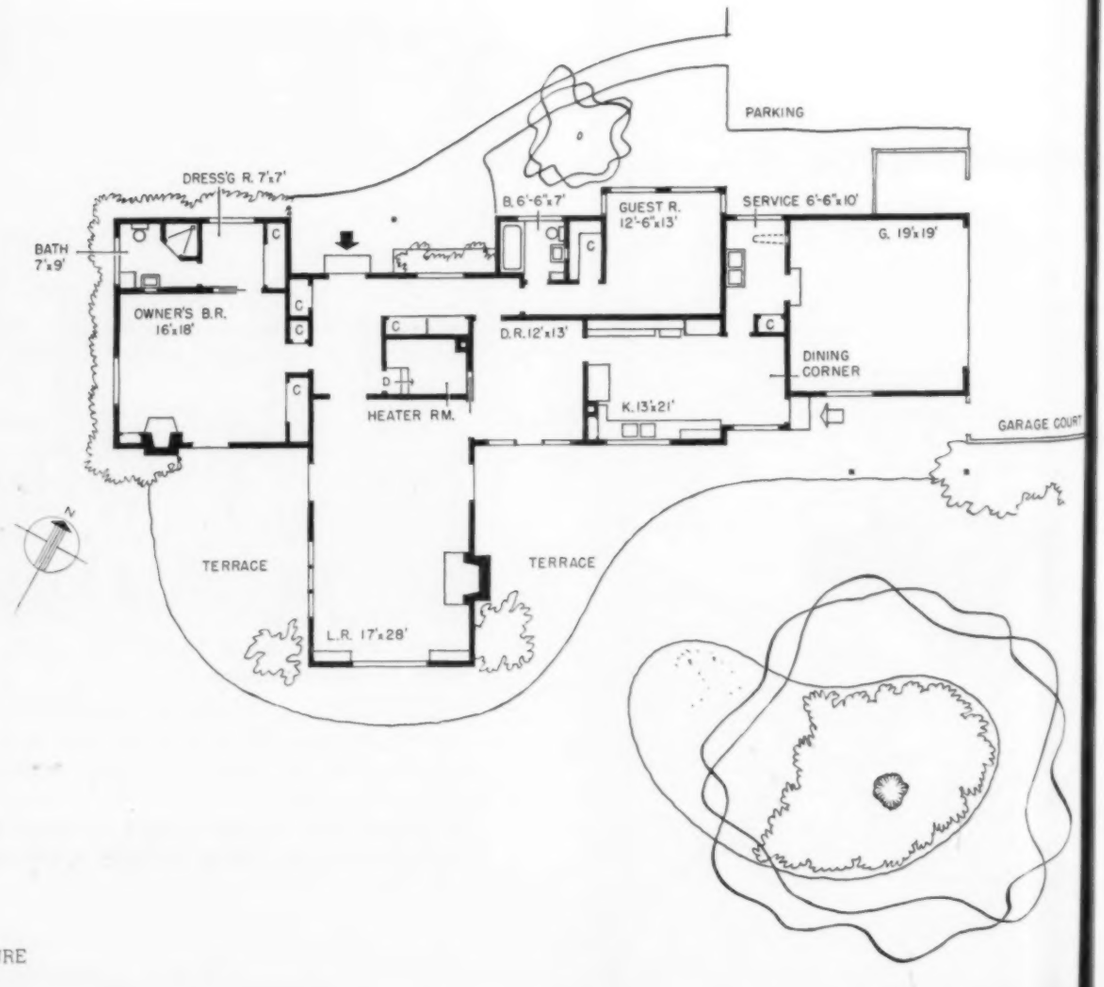
LANDSCAPING, by Thomas D. Church, is being worked out gradually by the owners themselves.

WURSTER

BERNARDI

EMMONS

Brief biographies of William Wilson Wurster, Theodore C. Bernardi, and Donn Emmons appeared in the December 1947 issue of PFA; page 14.



DOORS to living room (left) and dining room.

HOUSE, ATHERTON, CALIFORNIA

In the design of this country home for Grace and Kenneth Mortsolf, the architects used standard wood framing—"much as has been done for the past 100 years in these parts. The lines of the house are even similar to things built in the mining towns back in the '50s." The chief point applauded by both Mr. and Mrs. Mortsolf is the sense of spaciousness in so small a house. "This is one of the most enjoyable (and most commented on) features of our house," Mrs. Mortsolf says. Mr. Mortsolf adds: "The house was planned with the idea that no outside help would be employed. The kitchen is a pleasant, friendly room, overlooking and accessible to the garden. It has ample room for an uncrowded dining area at one end . . . We wanted and got easy accessibility to the out-of-doors . . . The house fulfills our ideas of what a country home should be . . . When we went to Mr. Wurster, we had the usual grab-bag of ideas, but in the course of the design, he patiently educated us, and the 'cute' ideas disappeared one by one, for which we are very thankful."

LIVING ROOM. The big window at the end overlooks the garden and the creek beyond. Pine boards are the surface for both walls (natural) and ceiling (painted). The Mortsolfs comment: "Our furniture was not considered in the design of the house, for we had planned to buy new furniture."

HOUSE, ATHERTON, CALIFORNIA

THE FRONT DOOR opens on an unpretentious porch in the southwest wing.

OWNERS' BEDROOM, in the end of the wing shown in the photo above.

ENGINEERING OUTLINE

CONSTRUCTION: Framing: 2" x 4" wood studs, 2" x 6" joists and trussed rafters. **Walls:** (exterior) 1" x 10" T&G rough redwood set vertically and painted; (interior) 1" x 12" T&G pine, either natural finish or painted. **Floors:** plain select oak over wood subflooring generally; linoleum in kitchen and baths. **Roof:** redwood shakes laid over 1" x 6" fir sheathing. **Ceilings:** T&G pine, painted. **Fenestration:** clear sugar pine sash; B quality single strength glass or crystal sheet redwood louvers and shutters. **Insulation:** wool batts between studs.

EQUIPMENT: Heating: gas-fired warm-air system.

GARDEN FRONT

HOUSE, LOS ANGELES, CALIFORNIA

CLIFFORD-LINDSTROM ASSOCIATES, Designers

Julius Shulman Photos

STREET FRONT. *Carport, right; entrance door, left.*

Compact, apartment-size home for a bachelor.

Clifford-Lindstrom Associates insists on partner collaboration on its residential design. Possibly the all-time record for adherence to a method of operating was established in the development of this small house for Ralph Clifford, one of the partners. For even the war failed to upset procedures. Preliminary sketches were developed collaboratively via V-mail letters (like the one reproduced on page 79) between Germany (Clifford) and Italy (Lindstrom), so that on their return to civilian life, working drawings could proceed at once.

PROBLEM: Easily maintained unit providing privacy both indoors and out on an irregular, urban lot.

SOLUTION: Wall toward street (entrance; garage) treated as screen for living quarters, opening out to fenced garden at the rear.

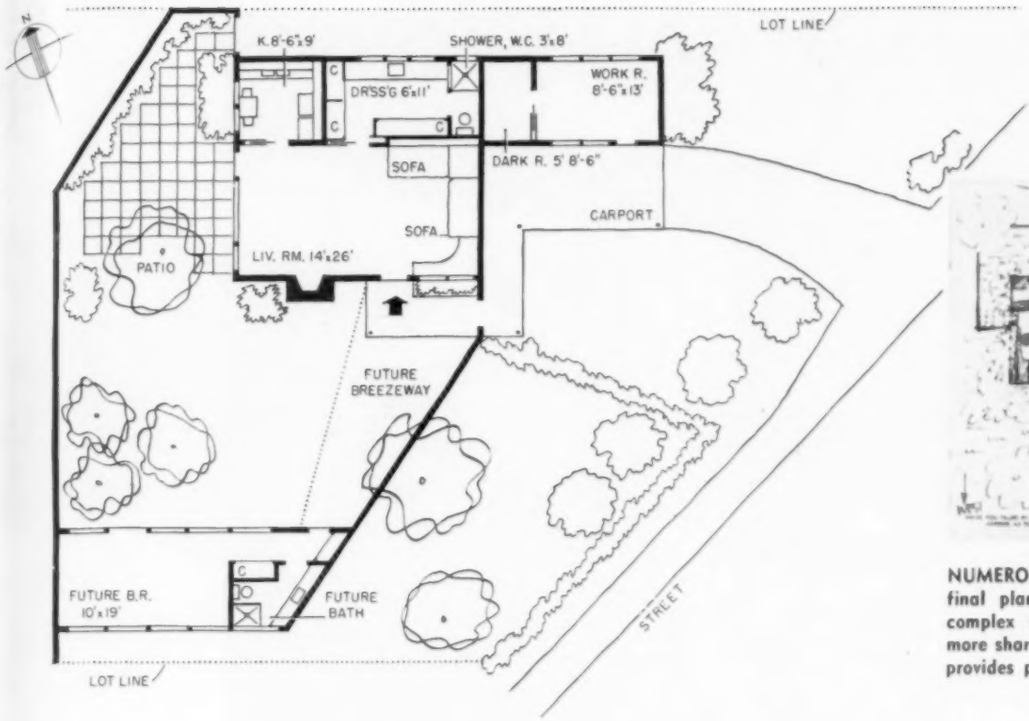
VIEW FROM WEST. Kitchen and living room, left; entrance porch and (through open door) glimpse toward carport, right.

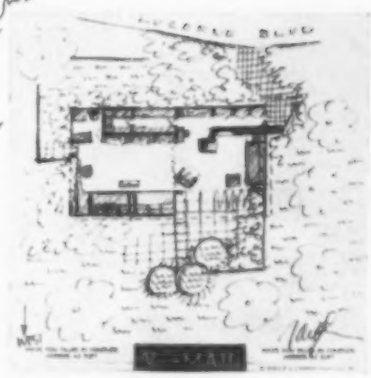
HOUSE, LOS ANGELES, CALIFORNIA

CLIFFORD LINDSTROM

Ralph Clifford, born in Springfield, Mass., received his training at the Calif. School of Fine Arts (San Francisco) and the Calif. School of Arts and Crafts (Los Angeles). Commercial and theatrical design work was interrupted by three years in the Corps of Engineers ("from Omaha Beach to Pilsen"). Since the war, Mr. Clifford has worked chiefly on commercial and residential design in partnership with **William Lindstrom.** Mr. Lindstrom, a native of Tacoma, Wash., attended the U. of Wash., and before the war (in which he served three years with the Signal Corps in Africa and Italy) he was engaged in furniture and residential design.

ENTRANCE PORCH

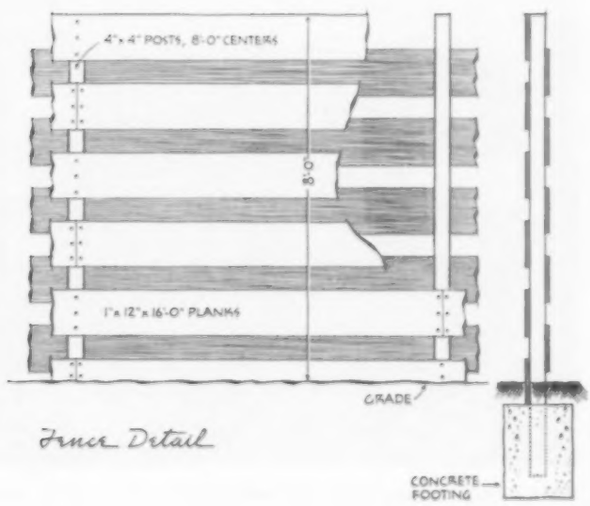




NUMEROUS V-mail letters preceded the final plan; original schemes were more complex and defined areas of activity more sharply. Fence around entire garden provides privacy for outdoor living.

Location on the odd-shaped flat lot, the designers tell us, was determined by a 25-foot setback requirement, leaving the north side as the only sizable space for development. A public school to the north and prevailing storms from the east resulted in minimum openings in these two elevations. A 6-foot overhang above the windows on the south and shade trees on the west serve as sun-control devices. Covered foot passage is provided from the workroom-studio and carport to the entrance door in the fence and so to the front-door porch. This scheme not only provides shelter, but avoids the need of using interior space for hallways.

FENCE, eight feet high, surrounds the outdoor living area.



Fence Detail

LIVING ROOM. Dry wall finish is used except in the shower and (plaster required) in carport.

HOUSE

LOS ANGELES, CALIFORNIA

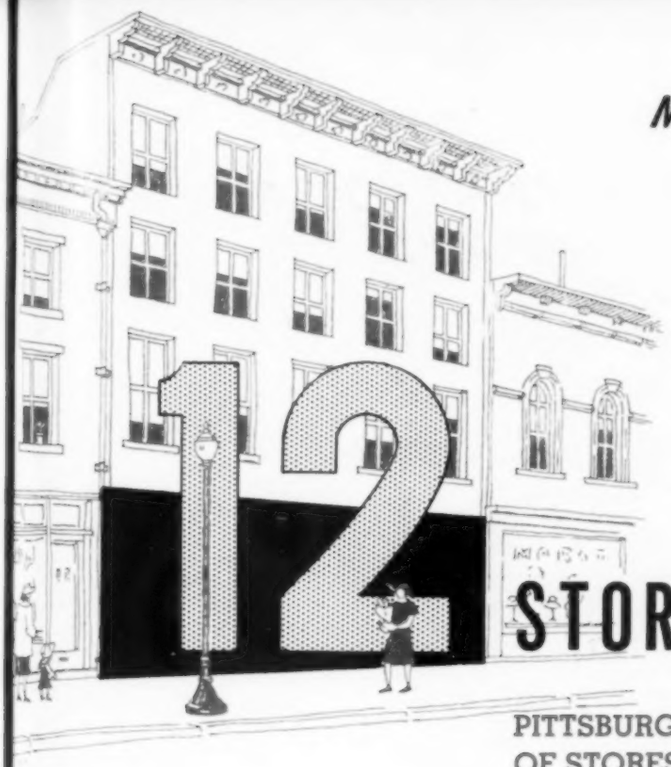
ENGINEERING OUTLINE

CONSTRUCTION: Concrete foundations. **Framing:** standard wood frame. **Walls:** (exterior) redwood; (interior) striated fir and birch-veneer plywoods. **Floors:** linoleum over wood subflooring. **Roof:** composition over wood. **Ceilings:** composition and acoustical tile. **Fenestration:** wood sash; standard glass. **Partitions:** stud, with plywood surfaces. **Doors:** standard flush panel and sliding.

EQUIPMENT: Heating: gas-fired units. **Lighting:** both incandescent and fluorescent units.

VIEW through windows beside the front door.

FURNITURE is built-in except chairs and a few tables.



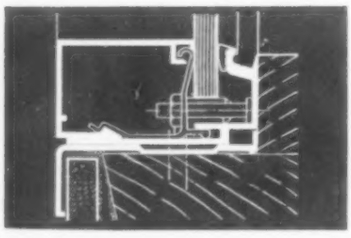
12 STORE MODERNIZATIONS

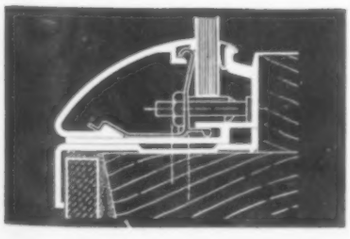
PITTSBURGH PLATE GLASS CO. TRAVELING EXHIBIT OF STORES DESIGNED BY E. A. LUNDBERG, ARCHITECT

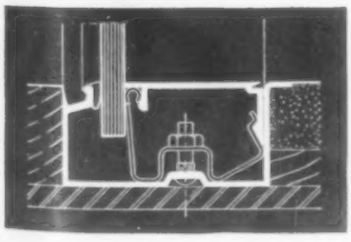
To promote store modernization of an intelligent type, the Pittsburgh Plate Glass Co. is currently sending on tour a caravan of store-front models. The models, themselves excellent pieces of craftsmanship, show only the fronts and what is visible through them, but the designs on which they are based are derived from conditions which exist universally. In addition, none of the fronts is considered as a front alone; all are developed to express a specific plan. In the following presentation the plans are shown in part, for the principal examples. Lack of space prevents inclusion of all plans.

The company is not offering the designs as cure-alls, but intends them to stimulate ideas. Wherever the kind of trade makes it advisable, open store fronts are advocated by the presentation; reasons include not only the display of the entire interior of the store to attract customers, but also the fact that the interior, if it is on display, has to be reasonably well organized, and this usually improves the mechanics of selling and enables the merchant to increase his profits. In preparing the designs, the architect and the company have tried wherever possible to coordinate lighting and color with the physical scheme, bearing in mind the nature of the merchandise sold. For this purpose they have obtained the advice of outside consultants when necessary.

The caravan is being shown to groups of architects, store-owners, builders, and those who finance construction. In presenting it, the company stresses the importance of individual architectural attention and the great desirability of retaining a competent architect before proceeding.

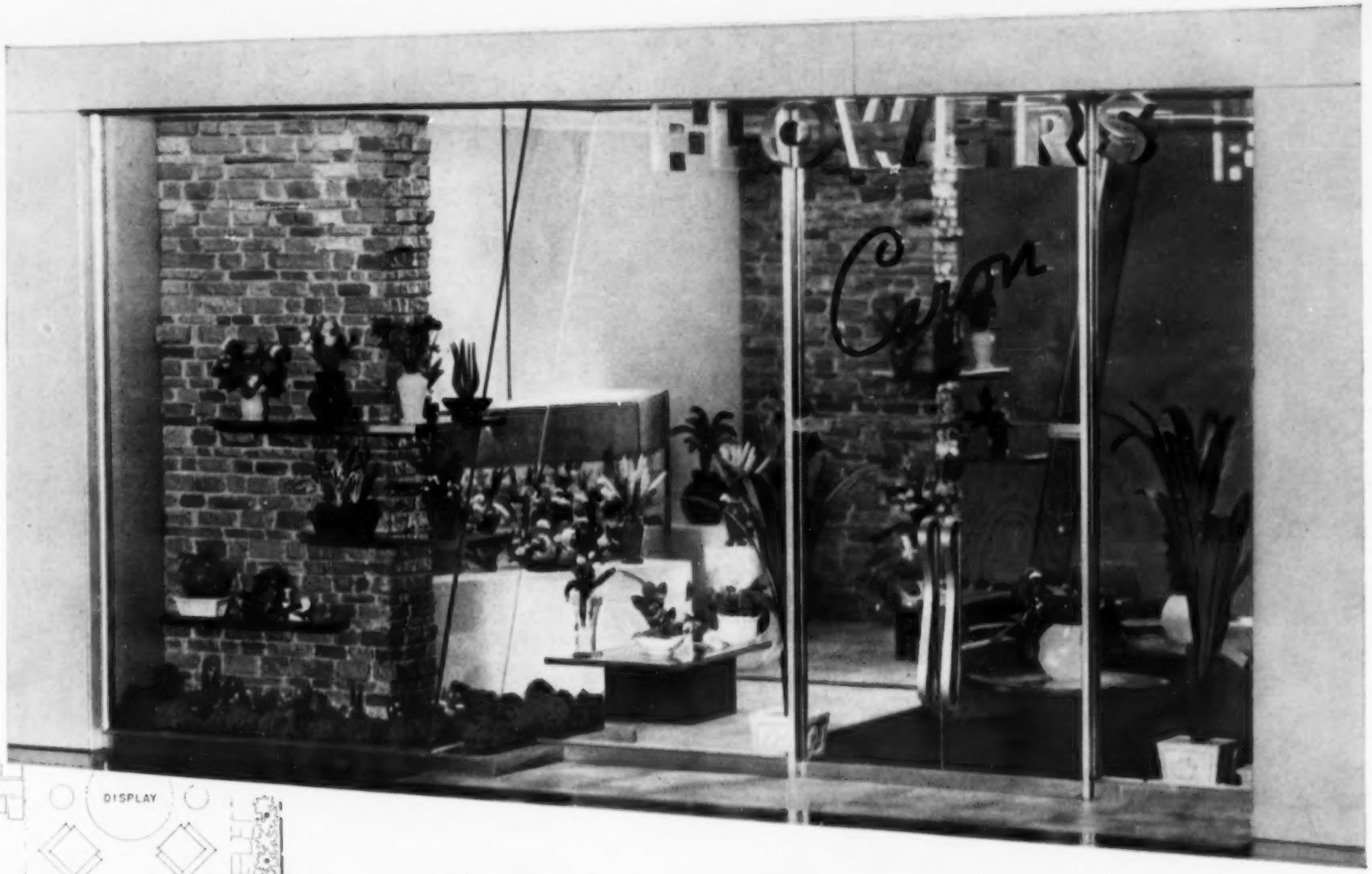


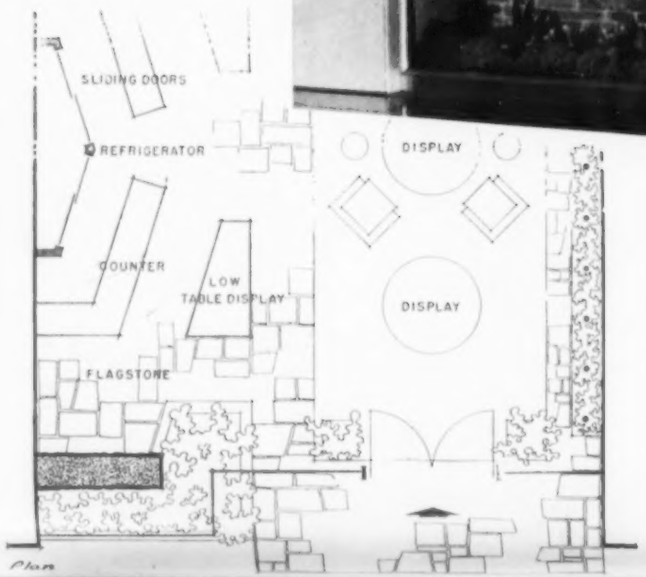




DETAILS show typical standard store-front moldings manufactured by Pittsburgh, used in the illustrated designs.

Direct color photography specially for reproduction by Ives Color Processes, Inc.





1 OPEN FRONT

Here the idea has been to bring into the window display the liveliness of color and form of the flowers shown inside, and to show the flowers along with natural materials. Hence, behind the completely open front, the stone pylon with structural glass shelves, and the planting beds running from the show window into the store. The recessed, flagged entry offers a transition from the street's artificiality to the naturalistic interior and affords the entering buyer some protection from foot traffic on the sidewalk. Inside, the refrigerator is made the dominating feature of the active selling space, which is to be more brilliantly lighted than the carpeted lounge space. The store is planned for a louverall ceiling; louverall's egg-crate lighting shield provides a reasonable approximation of natural lighting, and spotlights can be incorporated into it to highlight special displays.

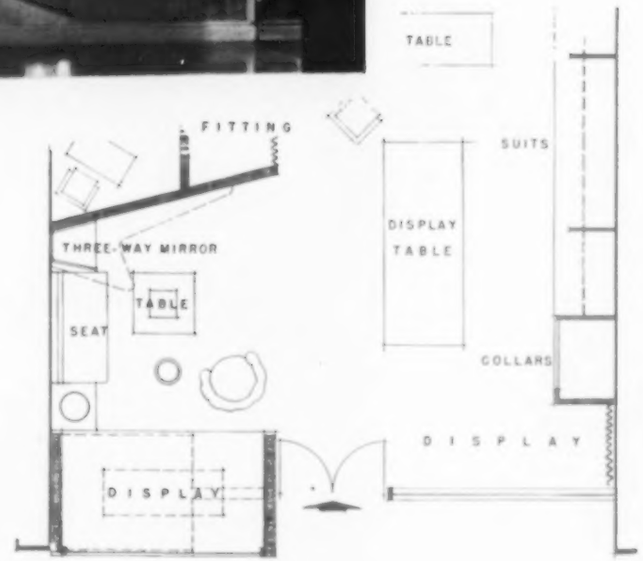
spotlights

Plan

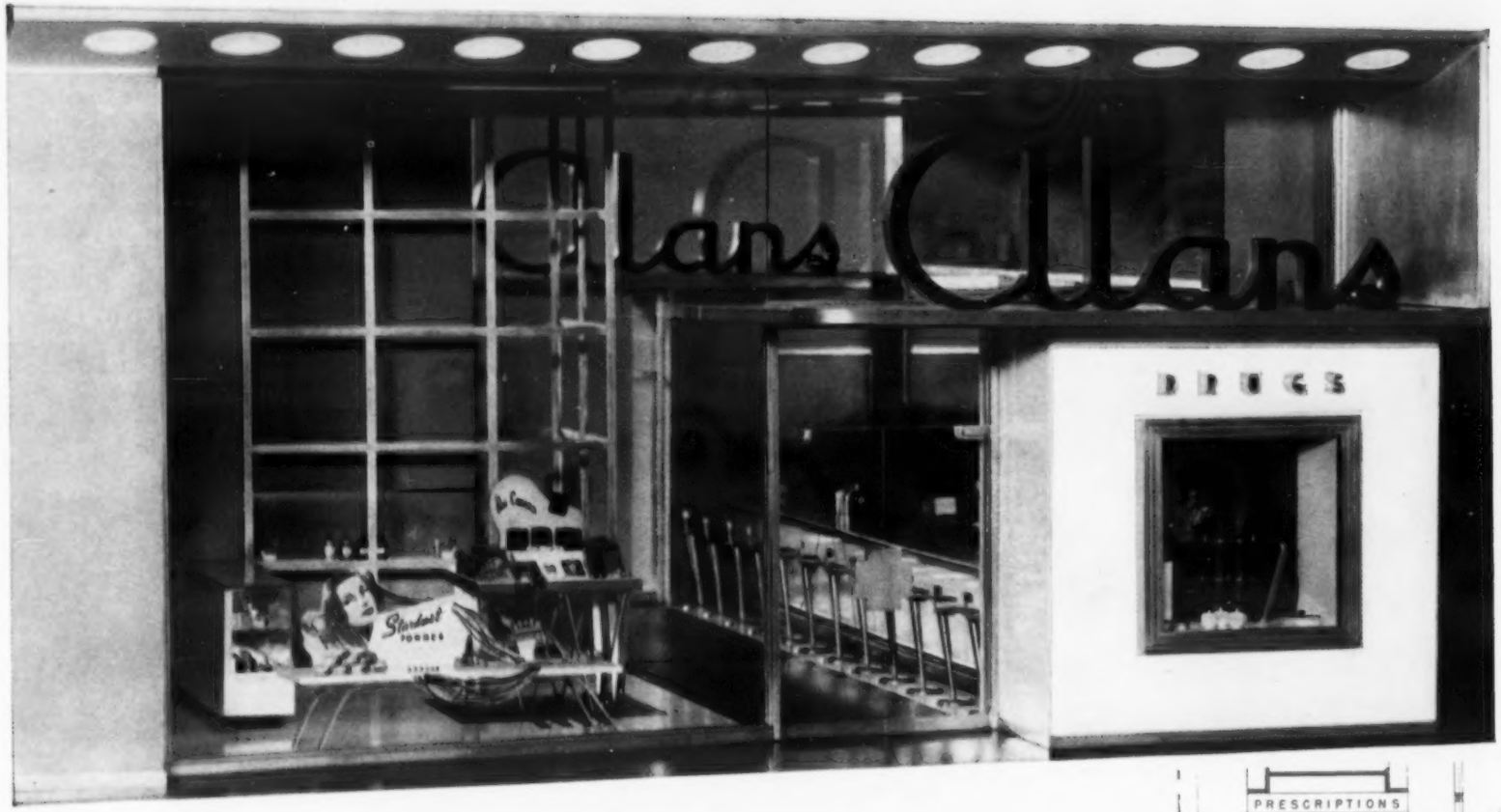
Inside, the refrigerator is made the dominating feature of the active selling space, which is to be more brilliantly lighted than the carpeted lounge space. The store is planned for a louverall ceiling; louverall's egg-crate lighting shield provides a reasonable approximation of natural lighting, and spotlights can be incorporated into it to highlight special displays.

2 SEMI-OPEN FRONT

In the men's-wear store there is a need to display several kinds of items. At the same time, there may be a desire to let the passer-by see the store's interior and its activity. This scheme provides a framed display space in the window left of the entrance, and unobstructed vision of the interior through the other show-window. The framed display window may have closed or open back, depending on the type of merchandise and the owner's wish. The interior of the store is departmentalized; suits, which the average male buyer likes to see under daylighting, are kept close to the front of the store, with fitting room and triple mirror close by. The deep case for suits to the right of the entrance is designed so that showcase lights illuminate lower as well as upper parts of suits hanging in it. Shirts, collars, and other accessories are in the rear departments (not shown in plan), with some display space up front. Store-front materials are black structural glass, plate glass, and aluminum and bronze store-front metal.

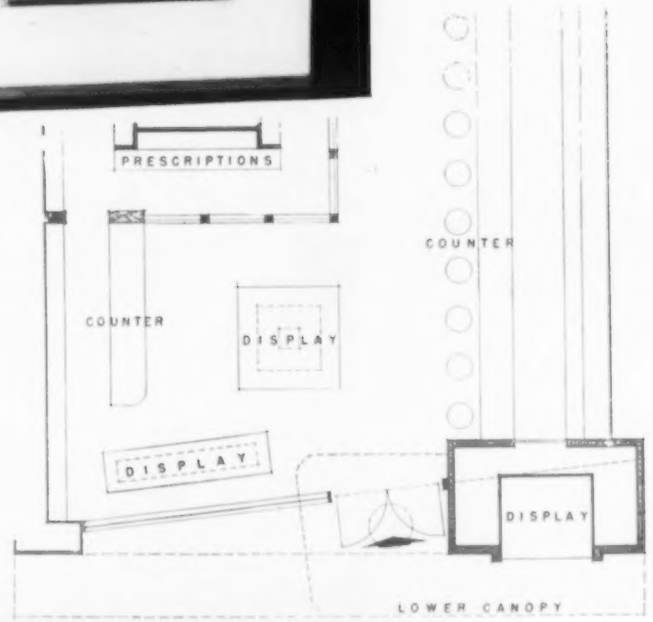


Plan



3 PARTLY CLOSED FRONT

In this case, a partly closed front is desirable both because small items constitute the principal displays and because the particular development of the plan makes some closure desirable. The solid front framing the display window helps to concentrate attention on special features; and it also blocks view from the street of unattractive operations behind the soda fountain. Setting the glass portion of the store front, and the doors, at an angle provides room for the doors to swing out without projecting into sidewalk traffic. Over the display window and door, the lower canopy houses lighting fixtures designed to increase the intensity of illumination at the entrance. This is valuable not only to direct customers to the entrance, but also to afford a pleasant transition from the brilliantly lighted interior to a darker street, after sunset—important for the satisfaction of customers who must use the drugstore in the evening, when a great percentage of this type of store's business is transacted.

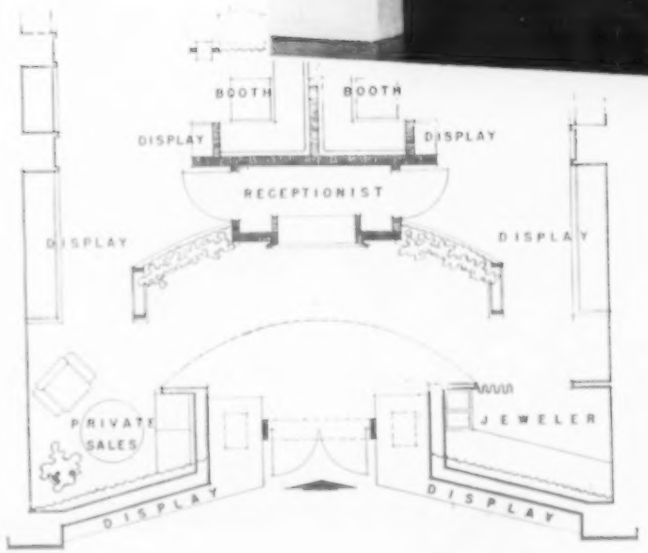


Plan

the entrance, but also to afford a pleasant transition from the brilliantly lighted interior to a darker street, after sunset—important for the satisfaction of customers who must use the drugstore in the evening, when a great percentage of this type of store's business is transacted.

LOWER CANOPY

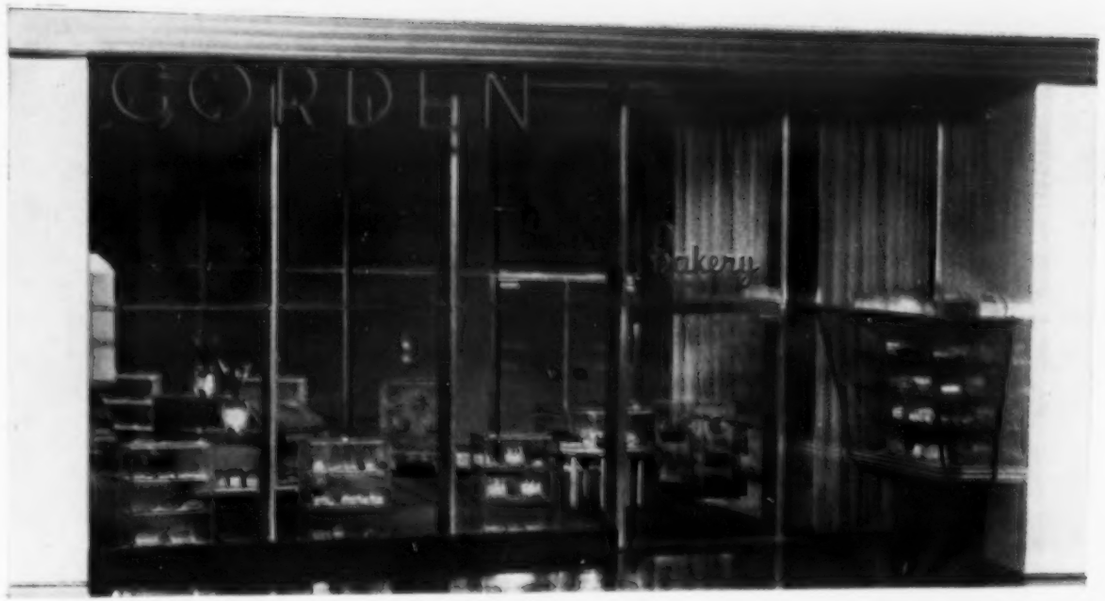
Plan

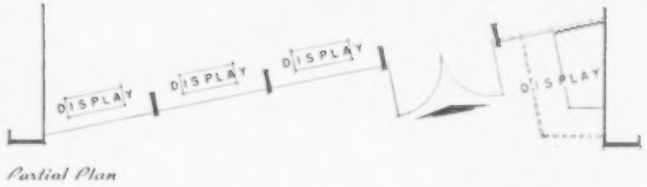


Plan

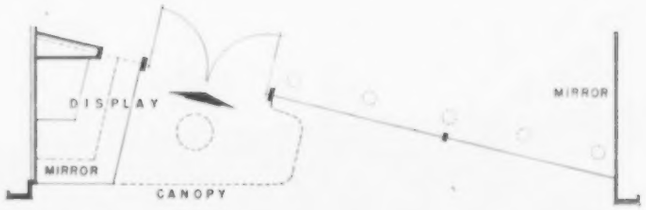
4 CLOSED FRONT

The custom jewelry store has somewhat a different problem than other retail establishments. A certain amount of privacy or exclusiveness is associated with jewelry-buying; and the merchandise, small in size, demands excellent lighting and display for close inspection. Hence the display portion of the store front needs to be concentrated, at eye level, with provision for intense lighting to make the merchandise sparkle. In this example the entire front, except at the doors, is "closed." The backs of the show-windows are translucent but not transparent, to provide light for the private-sales alcove and jeweler's workbench which flank the entrance. Inside, the store is arranged in a series of booths so that customers may be individually served. This area is screened from the tempered glass doors by a plant trellis, so that, while activity behind the screen will be apparent, the privacy of the customer is protected. Corrugated glass in the screen is a source of diffused light for the interior.





Partial Plan



Partial Plan

Materials and Methods

5,6 OPEN FRONT PLUS FOOD DISPLAY

Both the bakery and the grocery have to display food attractively and both have to accommodate a great many customers at peak periods—food shopping is usually the housewife's morning chore. In both these store fronts the food and the activity inside the store are displayed to the passer-by on the sidewalk. In both, featured displays are concentrated in small showcases beside the entrances. In both, the facade is placed at an angle to accommodate customer traffic; this also may serve to minimize reflections of undesirable street scenes. And in both stores the front is the simplest possible transparent screen, designed to afford full protection from weather and dirt, yet to allow the customer to see from outside that the store is clean and attractive. In the bakery, the window display case is designed so that baked goods may be sold directly from it. This practice is not so common in groceries; consequently the back of the grocery display window is almost completely closed.

7 EMPHASIS ON WINDOW

may be sold directly from it. This practice is not so common in groceries; consequently the back of the grocery display window is almost completely closed.

7 EMPHASIS ON WINDOW DISPLAY

The typical women's specialty shop presents a particularly difficult problem to the store-front designer. In its show-window have to be displayed a great variety of items, ranging in size from costume jewelry to suits and dresses. Therefore the front must provide several different kinds of display space, at several different levels so that the merchandise may be shown to best advantage; and the show-window lighting system must be quite flexible to achieve the numerous effects which will be demanded. Room for window shopping is provided here by setting the window at an angle.

Partial Plan

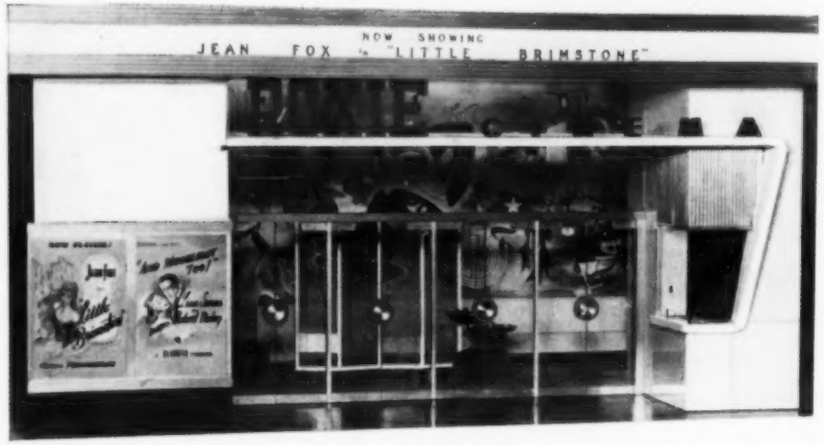
8 EMPHASIS ON INTERIOR ACTIVITY

This front is designed for a restaurant which affords at least two types of service: table and counter. Counter service would be placed behind the clear plate glass portion of the show-window, at the right. Customers sitting at a counter are more interested in quick service than in privacy. Table service areas would be behind the other portion of the front, which is broken up by horizontal and vertical division bars. These mullions form an apparent, if not a real, separation between diners and passers-by; and yet the entire interior is actually open to sidewalk view.

Partial Plan

9, 10 FRONTS FOR DISPLAYING SMALL OBJECTS

In the hardware store, left, there is a double problem. Both bulky items (power tools, etc.) and small items (nails, screwdrivers, etc.) have to be displayed; so two types of windows are included. The shoe store has to display in its window merchandise which is relatively small, but we are accustomed to seeing it from above, so the window is low.



11, 12 FRONTS FOR PLACES OF AMUSEMENT

We did not formerly regard a theater as a place suitable for an "open" store front, but it is obvious that the movement of people entering for a performance is an inducement to the public to attend. Hence this theater front, all doors, is also all glass. On the other hand, the bar front, severe and almost entirely "closed", limits vision into the establishment.

RELIANCE HOUSE, a prefabricated house with steel framing, has corrugated aluminum exterior surface, bonded on the interior to ½" rigid insulating board; the curtain wall thus formed is a sort of semi-sandwich which helps resist wind loads. William Lescaze, architect; Paul Weidlinger, consulting engineer.

ALUMINUM as a Structural Material Part II

By PAUL WEIDLINGER

Part I of this article, published last month, covered the metal's characteristics, methods of fabricating, and the economics of aluminum construction. In Part I should have been included reference to break-forming, a fabrication method often preferred to cold-rolling when quantities to be formed are small; and, in relation to economic aspects, to the high scrap value of the metal. Also, in Fig. D, "Modulus of Elasticity," page 83, September '48 P/A, deflection of the steel beam should have been shown as 7.3 in comparison with an aluminum beam of equal weight, rather than 22.

VI. ALUMINUM STRUCTURES

The structural designer working with aluminum can learn a lot from the use of the material in aircraft. There is a great similarity between the airframe, its functions and even the order of magnitude of loads, and the structural frame of a building. Members developed and employed because they use materials economically in the airframe are worth examining for their applicability to other structures. Not that airframe members should be directly copied; this would be impractical, since the extreme weight saving required in aircraft is achieved at the cost of difficult fabrication and complex assembly. There are, however, a few structural elements, quite basic in concept, typical of airframe design; these basic concepts (not the actual members) are particularly suitable to aluminum and can be used in other structures. Monocoques or semi-monocoques, stiffened thin plates, tension field girders, to mention a few of the more important, are design concepts foreign to the building designer, but well suited to aluminum construction. The much-talked-of stressed-skin and sandwich panels are also typical examples in which aluminum can be used to great advantage.

All these concepts have one or both of the following principal characteristics:

1. **Full exploitation of non-corrosive characteristics through the use of thin sheet metal members.**

2. **Special design features which compensate for the lower modulus of elasticity, and/or stability, of aluminum.**

The following discussion does not pretend to cover all possible types of applications. Rather, examples are selected at random from a comparatively few existing structures and structural elements which in part or in whole satisfy the above conditions.

(a) **Cold-rolled light-gage sections.** The design of such sections (angles, channels, hat sections, Zees, etc.) with thin walls (in aluminum up to 0.100") is primarily a problem in elastic stability. **Such members usually fail before they are stressed to the ultimate strength of the material, due to buckling in whole or in part, if subjected to compression.** This applies typically to compression flanges of light-gage joists (in both steel and aluminum). Flanges of such members act as short columns; they start waving or buckling in certain spots before the joist collapses. This is called "local instability." The cross-sectional shape of such members has to be designed in such a way as to retard this buckling, by "stabilizing" the edges (where the buckling begins) by stiffening them through the addition of flanges. This leads to the use of "flanged" sections.

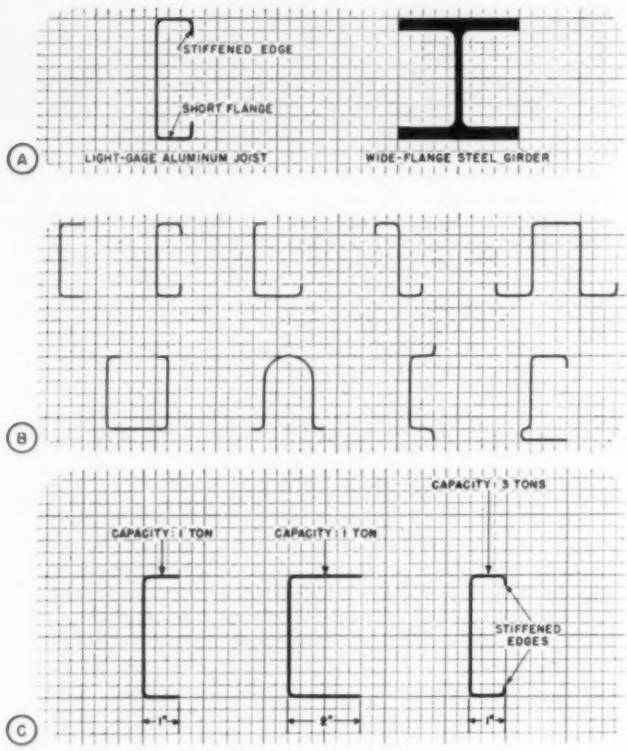
Such members acquire somewhat unfamiliar shapes; their connections and other details require special attention. The ideal light-gage joist or beam design would be such that local buckling would not start before general stress failure of the whole member. This can be achieved only rarely, but the tendency introduces into structural members proportions which differ from traditional shapes of rolled steel members. In order to increase the load-bearing capacity, the compression flange of such members is short, in contradistinction to the economical "wide-flange" members typical of rolled steel, because the critical buckling stress is a function of the so-called "flat-width ratio," i.e., the ratio between the thickness of the flange and its width. **The typical light-gage aluminum member is therefore rather deep** (to reduce stresses in the flange) **and has short, flanged** (i.e., stiffened) **compression flanges**—a form entirely different from that of rolled steel members.

The consequences of these factors are somewhat startling when visualized and are contradictory to the engineer's "horse sense" or the architect's "intuition": **a channel having a one-inch flange has one ton of load capacity; increasing the width of the flange to two inches, the load-bearing capacity remains the same. If the compression flange of the first channel is stiffened** (i.e., the edge of the flange is turned down), **its load-bearing capacity increases threefold to three tons.** (N.B. Numerical values are merely reasonable approximations of an extreme case: flat-width ratio of 11 for the one-inch unstiffened channel, 3S½H alloy.)

The use of aluminum tubing should also be noted. Tubular members are very efficient for both over-all and local stability. For this reason their use not only as columns, but also in transverse bending, is well justified in aluminum. Tubular aluminum frames are generally accepted in furniture design; tubular shapes should find application in framing larger aluminum structures.

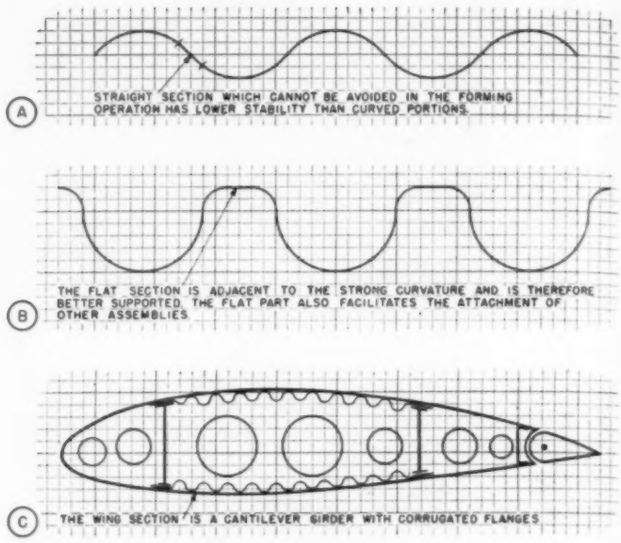
(b) Corrugated sheets are basically similar to other light-gage sections. They are used as transverse load-carrying members (beams) or as compression members (columns). The latter application has special importance in light of the

. . . . . STRUCTURAL MATERIALS AND MEMBERS DEVELOPED



COLD-ROLLED LIGHT-GAGE SECTIONS

A, The typical light-gage joist differs greatly from standard rolled steel shapes. B, Typical light-gage shapes. C, Load-bearing capacity of a light-gage joist is not necessarily increased by increasing the width of the flange. But *stiffening* the flanges does augment its capacity.


A
STRAIGHT SECTION WHICH CANNOT BE AVOIDED IN THE FORMING OPERATION HAS LOWER STABILITY THAN CURVED PORTIONS
B
THE FLAT SECTION IS ADJACENT TO THE STRONG CURVATURE AND IS THEREFORE BETTER SUPPORTED. THE FLAT PART ALSO FACILITATES THE ATTACHMENT OF OTHER ASSEMBLIES
C
THE WING SECTION IS A CANTILEVER GIRDER WITH CORRUGATED FLANGES

CORRUGATED SHEETS

A, *Standard circular arc corrugation.* This type cannot develop its full strength because the straight section buckles before the curved portions. B, *Omega or flat-topped corrugation* is more efficient, develops its full strength. C, use of corrugated sheets as compression members of large, built-up girders; cross-section of an airplane wing, a cantilevered girder with corrugated flanges.

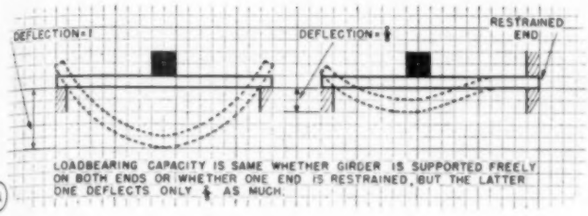
discussion of local instabilities. Thin curved plates (shells) have greater resistance against local buckling than flat plates. Since the corrugated sheet can easily be rolled in various shapes with curved surfaces, it is a specially useful structural element in aluminum. One very logical but not widely used application, except in airframes, is **the use of corrugated sheets as compression flanges of large built-up girders.** Such arrangements are often found in aircraft wings, which act as cantilever beams. The usefulness of such an assembly is quite evident from the previous discussions. The traditional shape of the corrugated sheet, made up of circular or parabolic arc segments, can be improved by avoiding the flat transition between adjoining segments, since the sheet usually fails at this portion. A more efficient shape, radically different in appearance from the conventional, is the "omega" corrugation developed by the aircraft industry. It should find its way into building construction and replace the familiar circular corrugation.

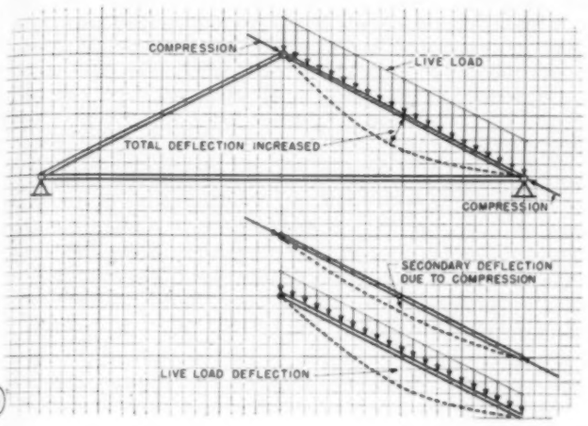
(c) Reducing deformations of aluminum beams. As has been shown, certain types of light members fail before their full strength can be developed. Another limitation which often prevents development of full working stresses is deformation of structural members. The magnitude of permissible deflection of beams is given as an arbitrary ratio between midspan deflection and span; it is established by practical considerations connected with the specific use of buildings and materials. To obtain the desirable deflection in a girder, two design quantities can be varied: depth, and maximum fiber stress. Deflection increases with increasing stress and decreases with increasing depth. For this reason, most codes and standards establish a maximum permissible (or recommended) depth-span ratio, which, together with maximum working stress, indirectly determines deflection-span ratio. For steel joists, for instance, a maximum depth-span ratio of 1/24 is recommended for simple spans. This, with a maximum working stress of 18,000 psi, is equivalent to a deflection of 1/333 of the span.

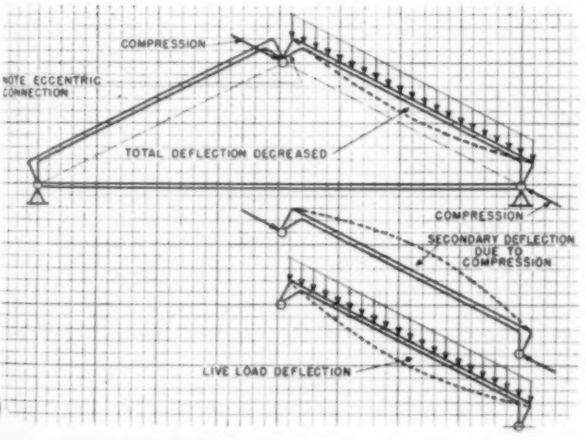
A 12-ft joist accordingly would have to be 6 in. deep. The same proportion, however, would not apply to the aluminum joist. Such a joist, fabricated of 17ST alloy, would be as "strong" as the steel joist, and could perform with the same working stress, but the deflection would amount to three times as much, or 1/111 of the span. This is far over safe limits. Numerically the steel joist of the example will have a midspan deflection of 0.44 in., the aluminum joist 1.32 in. In order to obtain the same deflection at full working stress, the aluminum member would have to be three times as deep, 18 in. for a 12-ft span. This immediately suggests reducing working stress to one third, to 6,000 psi, in which case the aluminum joist will deflect the same as the steel joist, with the same span-depth ratio. **The logical conclusion is use of low strength (and cheaper) alloys,** such as 3S½H.

(d) Rigid frames and continuity. The solution suggested above has a drawback; it reduces total load-bearing capacity by two thirds. This is not necessarily of importance in every case. In light structures rigidity has far greater importance than strength. In such designs, as was pointed out earlier, full working stress cannot ordinarily be utilized in steel. However, rigidity can be increased if necessary by using frames and continuous members, instead of simple beams.

The importance of this fact can easily be illustrated; compare a simple beam to a beam fixed on both ends (rigid frames or continuous structures often approach this condition of fixity). It is well known that fixed beams perform more efficiently than simply supported ones; they can safely sup-


DEFLECTION=1
DEFLECTION=½
RESTRAINED END
LOADBEARING CAPACITY IS SAME WHETHER GIRDER IS SUPPORTED FREELY ON BOTH ENDS OR WHETHER ONE END IS RESTRAINED, BUT THE LATTER ONE DEFLECTS ONLY ½ AS MUCH.
A

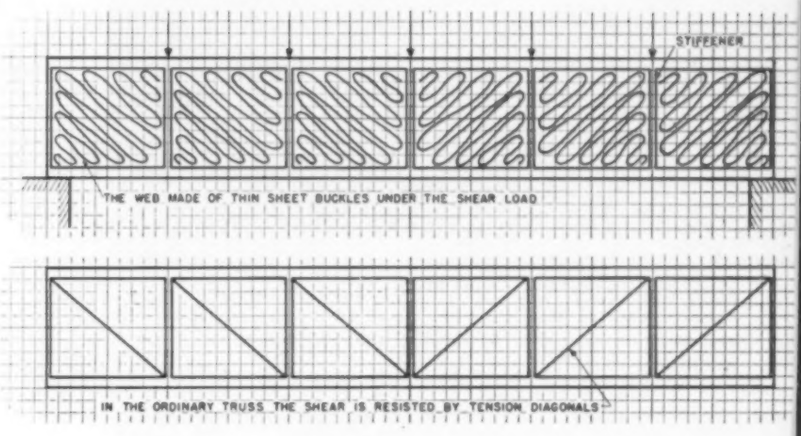




RIGID CONNECTIONS AND CONTINUOUS MEMBERS

These are important in aluminum structures because they reduce deflections. *A*, Comparison, girder freely supported and with fixed end. *B*, *Conventional triangular roof truss;* compression developing in the top chords causes bending, which augments deflection due to live load, which in turn increases the leverage upon which compression acts, which permits bending due to compression to increase, and so on. *C*, *Special roof truss* with offset connections induces bending due to compression to counteract deflection due to live load and permits aluminum to develop full strength. Drawing *C* is not to scale; in actuality, secondary deflection is less than live load deflection.

port 50% higher continuously distributed loads. More important in this case is the fact that under the same loading, the fixed beam will deflect only 1/5 as much as the simple beam. **Load-bearing capacity is not necessarily a function of deflection.** The concept can be further clarified if the beam is fixed at one end only, and freely supported on the other. In this case there is no gain in load-bearing capacity, but


STIFFENER
THE WEB MADE OF THIN SHEET BUCKLES UNDER THE SHEAR LOAD
IN THE ORDINARY TRUSS THE SHEAR IS RESISTED BY TENSION DIAGONALS

THE TENSION-FIELD BEAM

Used principally in aircraft design, this is a structural member developed to exploit fully the particular properties of aluminum. The web, of thin sheet, may wrinkle appreciably under shear stress; but if it contains sufficient metal to resist the tension stresses into which shear is translated, this wrinkling will not cause failure. The member could well be adapted to building construction.

deflection will still be only about 2/5 that of the simply supported beam. Immediately the importance of rigid framing and continuity to aluminum construction becomes obvious; the methods effectively compensate for the metal's low modulus of elasticity. **Rigid frames or continuous members, though they may entail somewhat increased fabricating cost, are not only justified, but highly recommended.**

This principle is fully exploited in the roof truss illustrated. The compression (top) chords of a conventional triangular truss deflect more than would a simply supported member, due to axial compression in the chord, which increases deflection once a small initial deflection is developed. As loads are increased, the resulting deflection increases, which in turn increases the lever on which compression parallel to the chord acts, which further contributes to deflection, and so on. This whole process is reversed in the illustrated design, where the eccentric connection of the chord causes an opposite (upward) deflection and therefore compensates downward deflection due to loads. As the load increases, the increasing deflection is counteracted by increased upward bending due to the axial forces. This illustrates one of the special design methods which can be developed to compensate for aluminum's lower elastic modulus.

(e) The tension-field beam, not widely known outside the aircraft field, is an excellent example of aluminum design because it demonstrates several principles. The TF beam is basically similar to familiar built-up structural steel girders with web stiffeners. The main difference is that the TF web is of very thin sheet metal, which is permitted to buckle or wrinkle under shear stresses caused by the load. The wrinkled web acts like tension diagonals in ordinary open-web trusses, thus creating a "tension field" within the web. This beam has two properties pertinent to our discussion: **first,** it demonstrates that a structural member does not necessarily fail under loads which cause large, visible deformations in some of its elements (such as wrinkling of the tension-field web), which is, of course, of special importance in aluminum. **Second,** recognizing this fact, such elements can be considerably lighter than the more elementary design procedures permit. In the TF beam, in some instances the web can be made of thin aluminum sheet, without danger of loss of strength due to corrosion—an impossibility in ordinary carbon steel. In light-gage steel,

Stanley Gerard Mason

ALUMINUM ROOF STRUCTURE (Patents Pending) employing the principles sketched on preceding page. Span: 24 ft. Connections at ridge and eaves are eccentric. Designed by Paul Weidlinger and Hugh B. Johnson Associates.

Courtesy Aluminum Co. of America

ALL-ALUMINUM BRIDGE SPAN, first in history, installed Sept. 26, 1946 on a railroad bridge at Massena, N. Y. Weight: 53,000 lb, compared to 128,000 lb for similar steel span. Span: 100 ft. Designers: Aluminum Co. of America; Hardesty and Hanover, consultants.

structural elements are not recommended to be less than about 0.06" thick. In aluminum, less than half this dimension is often used. The TF beam could well be adapted to building construction.

(f) Stressed-skin and sandwich panels are a better known counterpart of the tension-field beam, inasmuch as here the flanges, rather than the web, are made of thin sheets. Functionally, such members are of great importance, since the "skin," or outside covering, of the panel contributes to load-carrying capacity, while in "traditional" panels (floor or wall members) the outside covering has no structural function. In plywood the stressed-skin panel has become familiar. Studs or joists, the only load-bearing elements of conventional panels, take over the functions of the web, while the covering skin functions as the flange. Since the skin extends over the entire surface of the panel, the cross-sectional area of the flange is sufficiently large to permit use of a very thin skin. This thin flange is stabilized (buckling is prevented) by the web members (joists or stud) and the web therefore functions also as a stiffener. These conditions imply again the suitability of aluminum: **if the skin is sufficiently stiffened, its thickness, structurally determined by stress considerations, can be reduced to a minimum limited only by corrosion. Here again aluminum can be used more economically than steel.**

This preoccupation with the stability of the skin has brought about a logical, brilliant development. In aircraft design a thin plate is stiffened by applying members (light-gage channels, zees, etc.) riveted to the thin plate. When loads to be resisted increase beyond certain limits, spacing of stiffeners can become so close as to make them impractical. The next logical step is riveting or spotwelding a continuous corrugated sheet to the flat plate.

Such stiffened panels perform efficiently under axial loading (wall panels) since both the stiffeners and the stiffened plate participate in resisting the load. Under transverse loading (roof and wall panels) the lack of a second flange, or skin, results, obviously, in a less efficient structure. However, this second flange cannot be attached, because it will not permit access to the underside of the skin for riveting or spotwelding. Furthermore, closely spaced aluminum stiffeners necessary to stabilize the skin would not work to full capacity as web members. **These considerations have led to development of the sandwich panel, in which metal stiffeners or web members are replaced by a continuous non-metallic core, bonded to the skins. This solves both fabrication and structural problems.** Structurally a low-density core material bonded to the skins is close to the ideal answer; it gives continuous support (and therefore stability) to the skins; it has sufficient strength to resist shear between the flanges. The whole assembly is extremely light. At present a number of low-density cores are available, ranging from balsa wood to resin-impregnated paper honeycomb, from lightweight concrete to various low-pressure plastics. Some of these panels are still in the experimental stage, the choice of cement for bonding the core to the skin being of great importance to the durability of the whole panel.

●

The few examples cited are *not* intended as rigorous description, but rather as informal discussion of the underlying structural principles. Yet they conclusively demonstrate advantages which can be derived from their application. Such structural elements are not only efficient from the purely technical or engineering point of view; invariably they are also economically competitive. The material- or labor-saving aspects of such designs can be demonstrated in general terms, but cannot be expressed quantitatively except for specific cases.

Before we can fully realize and apply the potentialities of aluminum, we must do a considerable amount of groundwork. The design methods are available. We have had a great deal of experience in design and fabrication of airframes. Still missing is widespread application of these methods and experiences in the building industry. Initially this may be the responsibility of the aluminum industry. But a large share of responsibility rests with all the building industry and all persons connected with it.

One of the first tasks should be amendment of building codes and municipal ordinances to include specific provisions for aluminum. This can only be accomplished if interested trade organizations and institutes take it on themselves to prepare standards for the structural use of aluminum. Today, at best, there is general confusion on this subject, at worst it is not considered. The practicing engineer is reluctant to use a material lacking generally accepted design standards. Once such standards are established and recommended by responsible sources, acceptance by communities and municipalities should be possible.

As our discussion indicates, structural design in aluminum requires some methods and procedures which are not generally used at the present time. Publications devoted especially to building structures, to acquaint the practicing engineer with these new techniques, are badly needed, and should be supplied by the aluminum industry, which alone can undertake the essential research, experiments, and cooperation of various groups of experts. Colleges and universities, together with government agencies, could make a great contribution in undertaking part of the research; and might also include in engineering and architectural curricula the study of aluminum structures in order to acquaint future engineers and architects with this increasingly popular building material.

All of this will probably be accomplished sooner or later. Interest and demand on the part of architects and structural engineers might speed up action. In the meantime, in spite of some difficulties—and even resistance—aluminum structures *are* being built and additional experience is being gained.

THIS MONTH'S PRODUCTS

AIR AND TEMPERATURE CONTROL

Duo-Burner Unit: new oil- or coal-burning heating system; two separate combustion chambers; electric control damper shuts off one unit when converting to other fuel, thus preventing remaining fumes from igniting. Diesel Oil Burner Corp., 105-20 New York Blvd., Jamaica 5, N. Y.

"Half-Pint" Pneumatic Valve: compactly designed for inside-the-wall radiators in apartment buildings, schools, hospitals, factories. Minneapolis-Honeywell Regulator Co., 2747 Fourth Ave., S., Minneapolis 8, Minn.

Packaged Air Conditioner: cools, dehumidifies, filters, and ventilates. Available in three, five ton capacities; needs little floor space, easily installed. Multiple installations for larger areas for greater cooling requirements also available. U. S. Air Conditioning Corp., Como Ave., S. E., at 33rd St., Minneapolis 14, Minn.

CONSTRUCTION

Partition System: fire resistant, two-inch solid plaster partition members, especially designed for use in different combinations to meet varying building requirements. Light weight provides additional usable floor space. Inland Steel Products Co., P. O., Box 391, Milwaukee 1, Wis.

"Feather-Weight" Building Aggregate: raw perlite, a glasseous, volcanic rock, processed to give insulating and lightening qualities to cement and plaster. Also used as filler in paint and plastics, and to support catalysts and chemicals. Perlite Co. of Carnegie, Carnegie, Pa.

DOORS AND WINDOWS

Double-Hung Sash: for double-insulating glass windows; adaptable to conventional type. Built for volume production and quick installation. Black Millwork & Lumber Co., Inc., Midland Park, N. J.

Setting Blocks: made of pine, providing accurate method of assuring proper spacing of glazing in picture windows. Will help in bearing weight of glass, and enable glazing compound to seal space between glass and frame sides. Boxes of 100, with complete glazing instructions. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo 3, Ohio.

Dualock: dual purpose lock for wood or metal doors. Self-aligning, independent of door for proper functioning; simplified lock mechanism, necessitating small cross bore. Emergency key furnished with bathroom sets for unlocking door from outside. Choice of bronze, brass, or aluminum finish. Sargent & Co., New Haven, Conn.

ELECTRICAL EQUIPMENT AND LIGHTING

New Executive Luminaires: line of fluorescent and slimline lighting fixtures; wafer-thin in depth, louvered or glass bottoms; available in two and four lamp units, for standard 40w fluorescent and 51w slimline sizes. Complete wiring. All-bright Electric Products Co., 3917 N. Kedzie, Chicago 18, Ill.

Pressed Steel Connectors and Couplers: for use with electrical metallic tubing. Gripping secured by action of embedding screw working through boss. Screw head is driven down to rest on boss, its tip becoming embedded in tubing wall. Claimed to assure permanent grounding, tightness of connection. National Electric Products Corp., Chamber of Commerce Bldg., Pittsburgh 19, Pa.

Floodlights: improved, weatherproof. Each aluminum unit complete with silvered-glass Perma-flector and convex heat-resisting glass lens. Available in 200 to 1,000w lamp sizes. Pittsburgh Reflector Co., 410 Oliver Bldg., Pittsburgh 22, Pa.

Sprinkler Switch: new electrical device turns lawn sprinklers on and off at regular, timed intervals. For use on all types of overhead or concealed irrigation systems. Provides for multiple circuits operating in sequence for an adjustable period; special master switch discontinues operation during rainy weather. Tork Clock Co., Mt. Vernon, N. Y.

FINISHERS AND PROTECTORS

Ceramite: new product formulated to seal joints of metal, plastic, and ceramic wall tile. Claimed not to crack or draw away from tile edges through shrinkage. Pure white, will set hard in few hours. Armstrong Cork Co., Lancaster, Pa.

Stain Wax: interior woodwork stain, said to penetrate deeply and quickly in one application. Comes in several shades including white. Samuel Cabot, Inc., 16 Oliver Bldg., Boston 9, Mass.

Rubber-Coat Traffic Primer: silicated rubber-base coating for concrete or wood floors. Skid proof; can serve as base for gloss enamels. Wilbur & Williams Co., 43 Leon St., Boston 15, Mass.

PLASTICS

Floor Tile: made of Vinylite, said to be unaffected by water, oils, greases, or fruit acids. Produced in various patterns. Synthetic Products, Inc., 15091 La Salle Blvd., Detroit 21, Mich.

Lumite: new woven plastic material, produced as screening for windows, doors, and porches, and also as upholstery material. Will not rust or stain, can be washed with soap and water. Lumite Div., Chicopee Mfg. Corp., 47 Worth St., New York 13, N. Y.

INSULATION (THERMAL, ACOUSTIC)

Fiberglas Insulation Materials: lightweight, in board form, coated on both surfaces, for hot or cold ducts. Thermal conductivity about 0.26 at 75F mean temperature. Also Fiberglas flexible duct insulation, uncoated, lightweight, for application on concealed ducts where finish is not required. Thermal conductivity 0.23 to 0.25 at 75F mean temperature. Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

SANITARY EQUIPMENT, WATER SUPPLY, DRAINAGE

Waste King Pulverizer: electrical waste disposer. Pulverizes all food waste placed into sink drain opening when drain-control top is turned to "On." May be used with septic tanks or cesspools. Given Mfg. Co., 3855 Santa Fe Ave., Los Angeles 11, Calif.

Boiler Feed Pumps: series of multi-stage centrifugal pumps for high water pressure installations. Require minimum floor space only one moving part and no close clearances. Standard units from ½ to 20 hp. Also custom-built pumps for specific requirements. Jacuzzi Bros., Inc., Richmond, Calif.

Steam and Water Mixer Type SWV: provides low cost hot water supply at locations remote from general supply. Can be also used as booster heater to give higher temperature water. Maximum steam pressure 100 psi, maximum water temperature 180F. Sarco Co., 350 Fifth Ave., New York 1, N. Y.

Sunroc Water Cooler: not only cools water but also refrigerates storage compartment of two cu ft, and freezes three ice cube trays. Uses either pressure or bottled water. Sunroc Refrigeration Co., Glen Riddle, Pa.

SPECIALIZED EQUIPMENT

General Purpose Speakers: improved line, consisting of four models: 604B Duplex, 603B Multicell Diacone, and 400B Diacone. Altec Lansing Corp., 250 W. 57th St., New York 19, N. Y.

E-Z-C Scale: illuminated six-ft snap back ruler. Aluminum construction; rule has etched figures on carbon steel. Easily replaced battery and magnifying spotlight type lamp. Weighs 5 oz. Cowhig Industries, 899 Boylston St., Boston 10, Mass.

Kustomized Kitchen Counter Top: streamlined for Kitchen-Kraft steel sinks and floor cabinets. Concave back splash, beveled stainless steel trim. Floor cabinets are butted against each other and bolted. Tops joined together with watertight seal, making them grease- and dirt-proof. Midwest Mfg. Co., Galesburg, Ill.

Foilclad Pipe Units: insulated with asbestos or cork, coated with asphalt, and tension wrapped with asphalt-saturated asbestos felt. For overhead distribution of viscous fluids, steam, etc. Also pipe-within-pipe units, with outer pipe insulation, for maintenance of any desired temperature. Ric-wil Co., Union Commerce Bldg., Cleveland, Ohio.

"Dor-V-isE": newly improved tool designed to hold doors while planing. Pointed setscrews on feet of vise-shaped body will "dig in" and hold on any surface. Rubber padded feet prevent marring of floors. Stow Metal Product Co., c/o Rouse Co., 123 N. Water St., Kent, Ohio.

Manufacturers' Literature

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

AIR AND TEMPERATURE

1-197. Zone-pac (F-3245), leaflet on packaged zone control systems that regulate heat supply to one or more radiators as motor-operated zone valve responds to demands of thermostat. Barber-Colman Co.

Four loose sheets on fans, blowers, and exhausters. Advantages, dimensions, specifications. Chelsea Fan & Blower Co., Inc.:

1-198. Chelsea Industrial Fan (Bul. 855)
1-199. Chelsea Window Fans (Bul. 852)
1-200. Chelsea General Purpose Attic Fan (Bul. 850)

1-201. Octopus Blowers and Exhausters (Bul. 861)

1-202. Pezzillo (Form BS), 6-p. folder on a hot water circulator, permanently lubricated, with sealed motor bearings requiring no attention. Advantages, installation photographs. Pezzillo Pump Co., Inc.

1-203. Servel All-Year Gas Air Conditioner (APS-718), 4-p. illus. folder on an air-conditioning system which provides both summer cooling and winter heating. Operation, capacity, fan, and motor data. Front, side, plan views. Servel, Inc.

1-204. Standardized Copper Convectors, AIA 30-C-4 (Cat. C8), 20-p. illus. catalog on convectors with heating elements constructed entirely of copper. Construction features, installation details, steam and hot water capacities, list prices. Tuttle & Bailey, Inc.

CONSTRUCTION

★ **3-19. Lally Columns,** 23-p. catalog to aid architects, engineers, and builders in designing Lally columns in structures of wood, steel, or concrete. Construction data, diagrams, sections. Lally Column Co.

3-20. Stainless Plates and their Fabrication (SS 7-ED 1), 30-p. booklet supplying information on selection and fabrication of solid stainless steel and stainless clad plates. Tables of dimensions and sizes, specifications. Book is sectionalized for easy reference. Allegheny Ludlum Steel Corp.

3-21. Chromedge Metal Trims, AIA 23-i, 66-p. illus. catalog on groups of metal trims (650 shapes and sizes) and their uses. Also tools and accessories. Detailed drawings, visual and numerical indexes, general information. B & T Metals Co.

3-22. Morgan Woodwork (Cat. 102), 153-p. illus. catalog describing complete line of woodwork for all uses, including cabinets, mantels, stairwork, window units, doors, shutters, etc. General information, details, sizes and dimensions, prices; index. Hussey-Williams Co., Inc.

★ **3-23. Handbook of Frame Constants** (T-32), 32-p. manual covering modern building codes, bridge design specifications and methods of frame analysis; contains 27,050 constants for 1390 structural members to facilitate analysis of almost any indeterminate structure. Portland Cement Assn.

DOORS AND WINDOWS

4-142. Daylight in Public Buildings, 12-p. illus. booklet on use of glass block as fenestration material for public structures. Typical installations, general information. American Structural Products Co. (Subsid. of Owens-Illinois Glass Co.).

4-143. Windowalls, 24-p. illus. booklet on 29 combinations of stock sizes and designs of complete wood window units. General information, photos, specifications. Andersen Corp.

★ **4-144 Better Windows at Lower Cost** (RE-16), 8-p. illus. catalog on residential steel casement windows for industry-engineered frame and masonry houses. Dimensions coordinated with building materials to save costs. Installation details, plans and perspectives, advantages. Detroit Steel Products Co.

4-145. Fenestra Inside Metal Storm Window (RE-11 20M-8-47), 4-p. folder on an inside metal storm window for residence casements; eliminates condensation, providing clear window vision. Advantages, condensation chart. Detroit Steel Products Co.

ELECTRICAL EQUIPMENT AND LIGHTING

5-138. Powerstat Theater Dimmers (Bul. 347), 4-p. folder on various types of non-interlocking individual dimmers for use wherever only few circuits require dimming. Description, ratings, photos. Superior Electric Co.

5-139. Cannon Plugs (Cat. C-47), 32-p. illus. catalog on multi-contact connectors for radio, communications, etc.; also signal equipment, conduit fittings, special lights, fire alarm boxes and relays, grills, broilers, sprinklers, wagons. Data, prices, index. Cannon Electric Development Co.

★ **5-140. Federalog** (No. 107), 104-p. illus. catalog for quick reference to listing of electrical products, including switches, meter socket troughs, multibreakers, lighting panelboards, industrial controls, etc. Application data, two indexes. Federal Electric Products Co.

5-141. Alabax, AIA 31f 23 (Cat. AL3), 14-p. catalog on line of porcelain lighting fixtures. Descriptions, typical installations, price list, index. Pass & Seymour, Inc.

5-142. Lighting by Ruby (June 1948), 40-p. illus. catalog on new fluorescent fixtures for all commercial and residential needs. Descriptions, dimensions, wattages. Ruby Lighting Corp.

★ **5-143. Fluorescent Lighting Equipment,** AIA 31-F2, 52-p. illus. catalog presenting complete line of luminaires, troffers, strips, accessories, etc., together with incandescent equipment which may be used in conjunction with fluorescent lighting for planned lighting installations. Descriptions, specifications, engineering data, recommended levels; cross-index. Pittsburgh Reflector Co.

FINISHERS AND PROTECTORS

6-132. Industrial Floor Resurfacer, 8-p. brochure on flooring materials for resurfacing, repairing, smoothing, and leveling. Advantages. Camp Co.

6-133. For Extraordinary Wear, brochure on carborundum floor coatings which prevent slipping, resist concrete chemicals. Color chart, advantages, testimonials. Endur Paint Co.

INSULATION (THERMAL, ACOUSTIC)

9-100. Through-Wall Flashing, AIA 12-H (Monograph V), 6-p. booklet on copper through-wall flashing used in building construction to prevent moisture penetration of masonry walls. Application, installation diagrams. Copper & Brass Research Assn.

9-101. Vibracork, 4-p. bulletin on corkboard providing insulation against vibration and noise. General data, application methods, proper loading for different densities. Korfund Co., Inc.

9-102. Fibretone (AC-34A-7-48), 8-p. brochure on an acoustical material de-

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Manufacturers' Literature

signed to quiet unnecessary noise. Suggestions on design possibilities, application practices, erection details, list of sizes, weights, and sound absorption data. Johns-Manville.

PREFABRICATION

16-118. Prefabricated All Steel Garage, 4-p. illus. folder on fireproof garage constructed of box type corrugated steel sheets; aluminum overhead door. Also prefabricated utility buildings for storage and warehousing. U. S. Steel Fabricators, Inc.

SANITARY EQUIPMENT, WATER SUPPLY, DRAINAGE

19-252. Better Water Means Better Living, 28-p. booklet on water coolers for every requirement. Advantages, new features, table of requirements, typical installations. Drinking Water Cooler Mfrs. Assn., Div., Refrigeration Equipment Mfrs. Assn.

19-253. Key-Tite (K-100), folder on pipe-joint compound for sealing joints on water, gas, and low pressure steam lines. Description, advantages, uses, prices. Key Co.

19-254. Norge Double-Capacity Automatic Washer (Form AW-448-8), 4-p. folder on an automatic washer with capacity of over 18 lbs; reduces laundry time, saves hot water. Norge Div., Borg-Warner Corp.

SPECIALIZED EQUIPMENT

19-256. Stainless Steel Sinks (5265), 12-p. illus. catalog on all welded, seamless, heavy-gage steel kitchen sinks with rounded corners and coves. Specifications, dimensions, features. Also list of industrial food service equipment. S. Blickman, Inc.

19-257. Flodar Tube Fittings, (Cat. 400), 12-p. illus. catalog on tube fittings, flare and no-flare types, featuring alloy spring steel sleeve which holds excessive pressures beyond capacity at which tube would ordinarily rupture. Detailed engineering specifications, ordering and assembly instructions. Flodar Corp.

19-258. Frozen Food Storage Made Easy! (A-14), 6-p. illus. folder on refrigerated lockers; no insulated room or building necessary. Features, capacities. Iceberg Refrigerated Locker Systems, Inc.

★ **19-259. Fountain and Luncheon Equipment** (AD 4240), 26-p. booklet containing full descriptions, illustrations, and specifications of standard soda fountain and luncheonette equipment. Liquid Carbonic Corp.

19-260. Module Magic, 18-p. booklet on modern sectional furniture that can be put together in many combinations. Descriptions, photos, drawings; includes planning sheets on which to trace drawings of any desired combination of furniture pieces. Mengel Co.

★ **19-261. Latex Foam,** 12-p. booklet on rubber cushioning material made from pure latex. Description, advantages, uses; index. Rubber Development Bureau.

19-262. Counter & Sink Tops, 12-p. catalog on standard and custom-built sink and counter tops in either linoleum or plastic. Descriptions, specifications, drawings, installation data. Technical Appliance Corp.

SURFACING MATERIALS

19-263. Amtico Rubber Tile and Sheet Rubber Flooring, 4-p. folder describing various styles of rubber tile and flooring. Patterns, colors, installations, sizes and gages. American Tile & Rubber Co.

Two folders on cork tile and stair-treads. Advantages, drawings, installations, technical data. Cork Insulation Co., Inc.:

19-264. Stairway of the Stars.
19-265. Corinco High Density Cork Tile.

Two 4-p. folders on color darkening of air entrained concrete highways for heat absorption, temperature equalization, and better visibility. Advantages, data on mixes, testing procedure, typical installations, specifications. A. C. Horn Co., Inc.:

19-266. Horn A E Dispersed Black for Use in Darkening Air Entrained Concrete (4780365)

19-267. Horn A E Dispersed Black.

★ **19-268. Amerwood,** 4-p. folder on new, pre-finished, processed wood paneling, applicable to any flat surface in new or old construction. Description, photographic examples, widths and lengths, technical data. Lehwood Corp.

TRAFFIC EQUIPMENT

20-236. Wooster Safety Treads (Cat. 48), 12-p. illus. catalog on safety treads for stairs and ramps in institutional and industrial buildings. Also elevator sills, rolled and extruded metal thresholds, cast aluminum and cast iron window sills, curb bars and trench covers. Typical installations, specifications, sections, complete descriptions. Wooster Products, Inc.

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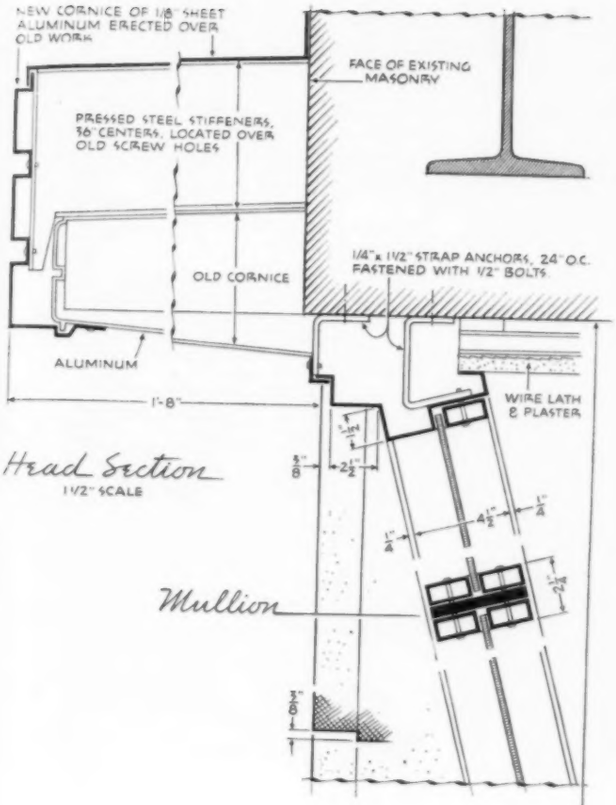
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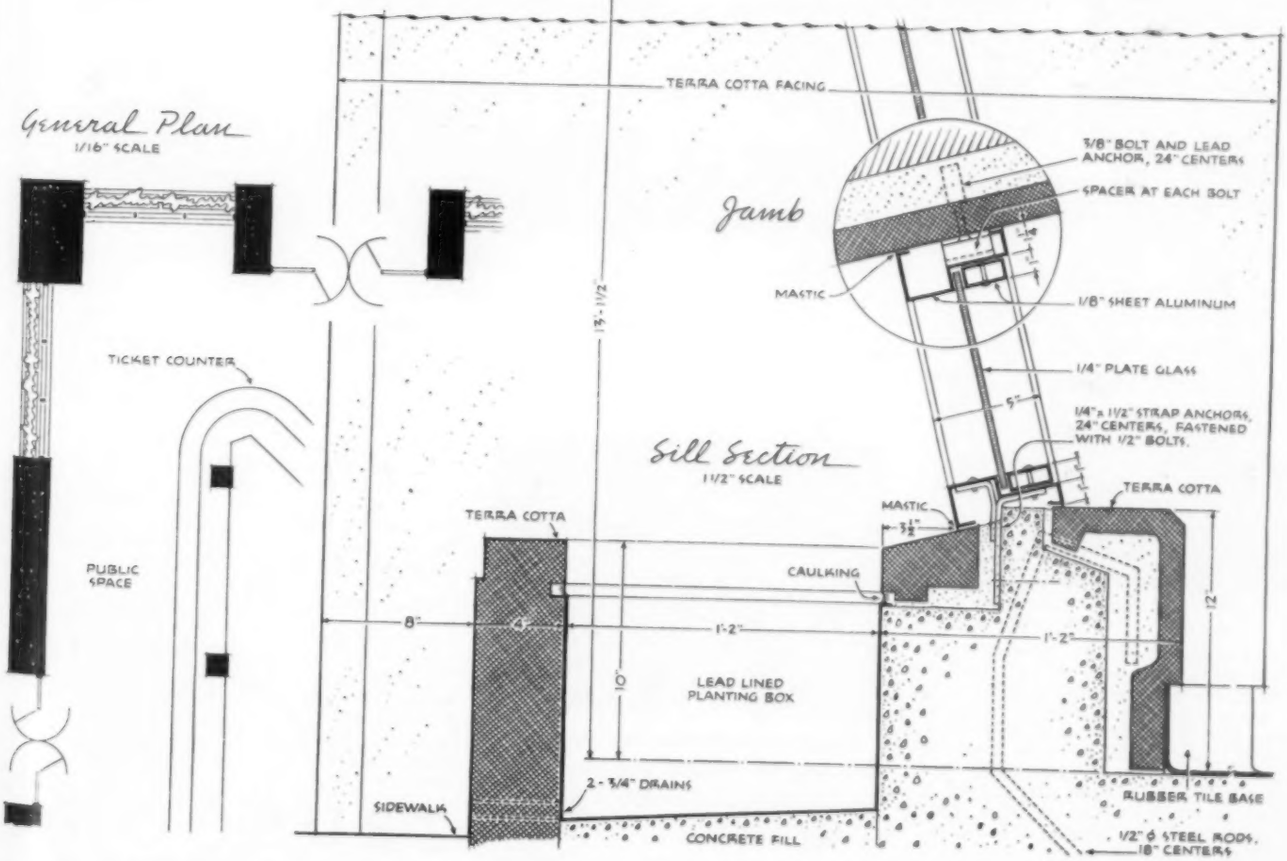
1'-8"
Head Section
1 1/2" SCALE
Mullion



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General Electric's laminated plastics plant at Coshocton, Ohio, encompasses three buildings and 238,320 square feet of manufacturing floor space. This new plant was designed to be the largest and most modern of its type in the country. It is one of the many new structures utilizing the modern design and long-time economy of Truscon Steel Windows to secure the highest possible returns from window installations.

Truscon Architectural Projected Steel Windows were selected to obtain the simple functional lines which characterize the handsome two-story office building. These Truscon Steel Windows are especially recommended for efficient utilization of sunlight, ample ventilation with freedom from drafts, and reduction of air filtration to a minimum.

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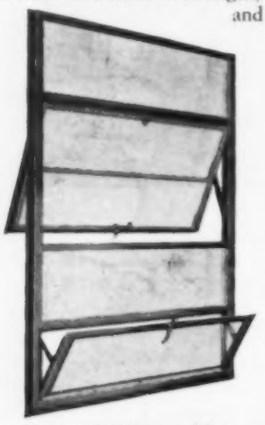
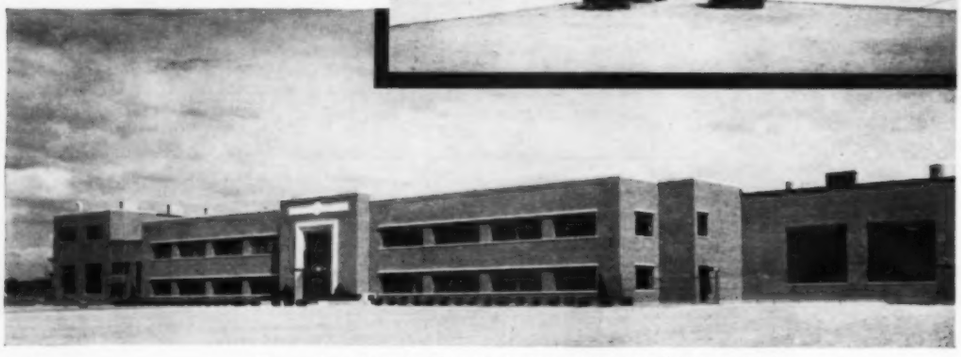
Coshocton Works, General Electric Company, Coshocton, Ohio. Designed and built by The Austin Company, Cleveland, Ohio. Note the clean, straight architectural lines achieved with the help of Truscon Architectural Projected Steel Windows.



Truscon Architectural Projected Steel Windows are used throughout the office of the new General Electric building.



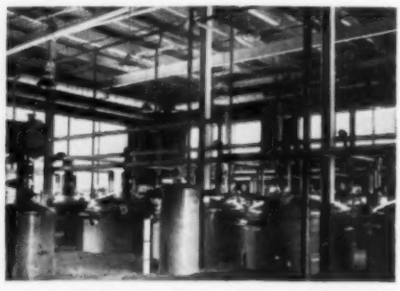
Truscon Ferrobord Steeldeck Roof protects the entire Coshocton Works.

Truscon Pivoted Steel Windows Used Throughout the New G-E Manufacturing Facilities

Truscon Pivoted Steel Windows are used in the powerhouse.

The one story main factory section and two smaller buildings are equipped with Truscon Pivoted Steel Windows. Maximum lighting and easily controlled ventilators in these Truscon Windows help to increase production efficiency, and contribute to the pleasant working conditions that General Electric employees enjoy in this plant. Truscon Pivoted Steel Windows are adaptable to all types of industrial and commercial buildings, including warehouse, factory and storage buildings, garages, filling stations, etc. The slender but strong and rigid steel muntin bars admit the maximum of light to the interior. The windows are permanent and fireproof. They will not stick, shrink, warp, or fail to operate easily, regardless of climatic conditions.

Write for free 1948 catalog: TRUSCON STEEL WINDOWS AND INDUSTRIAL DOORS, or consult your Truscon Sales-Engineer.



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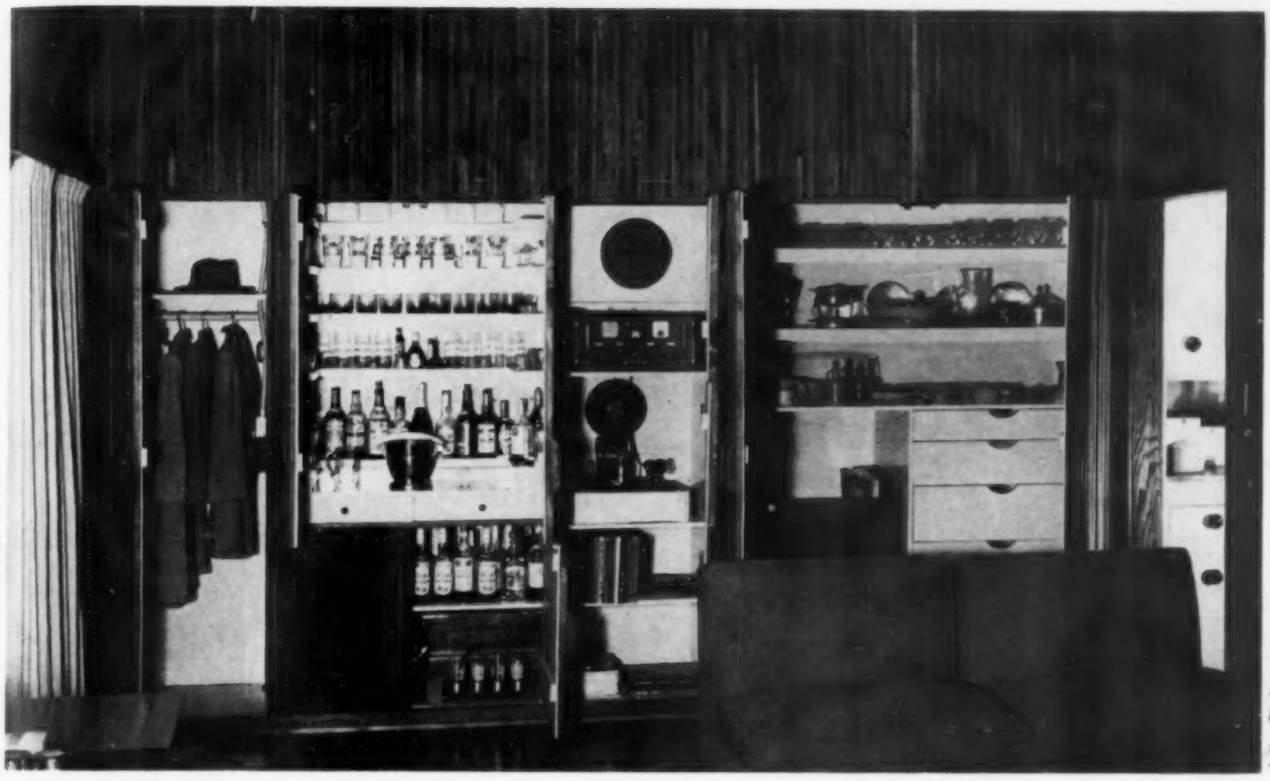
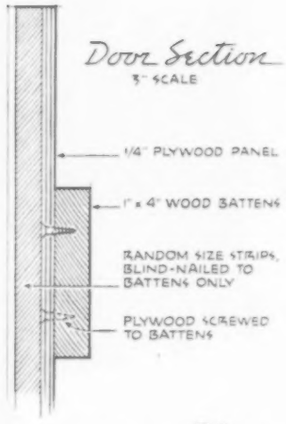
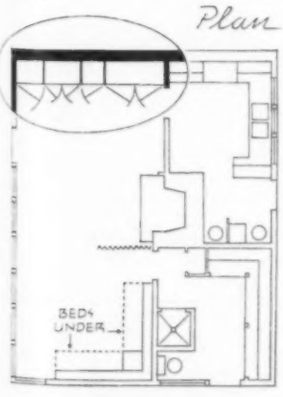
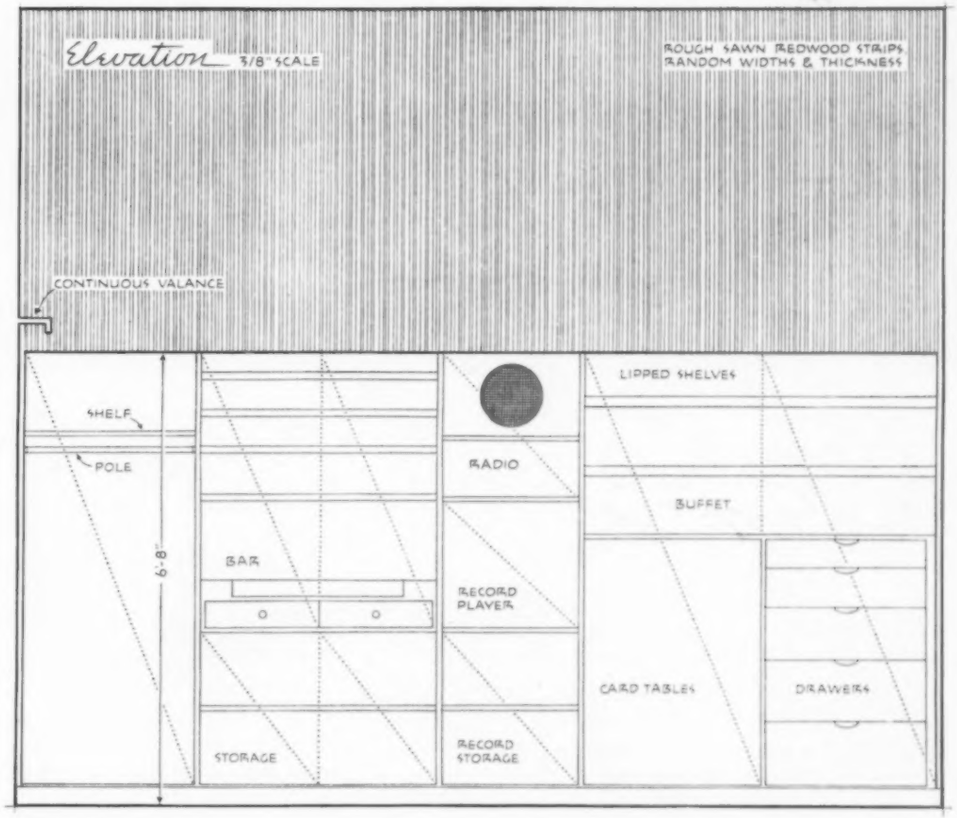


Julius Shulman







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HAROLD J. BISSNER
Architect

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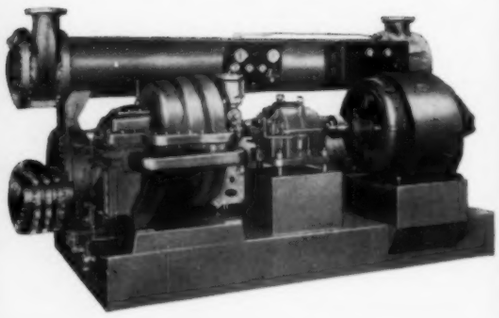

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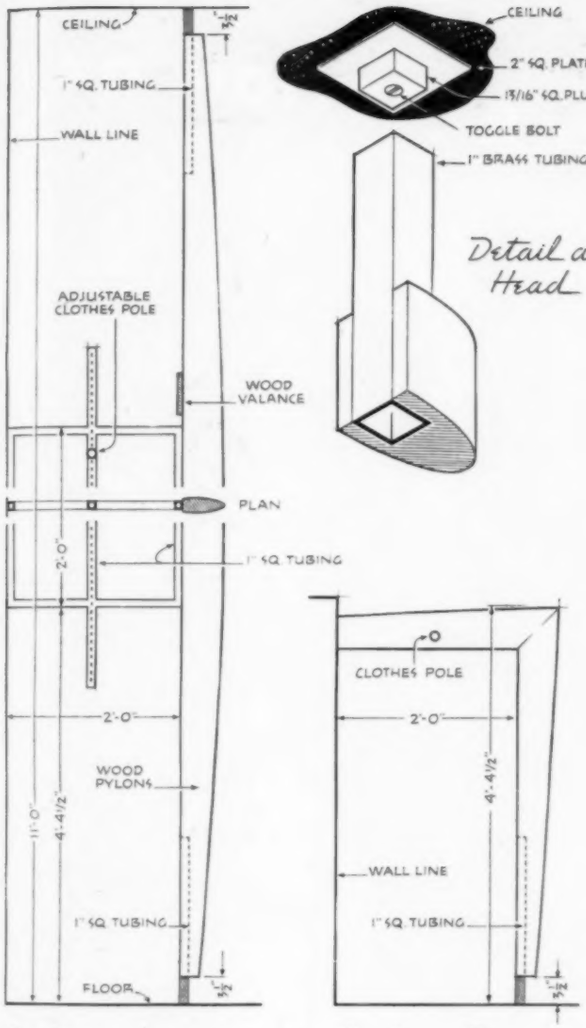
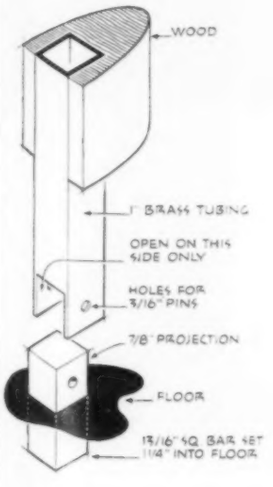
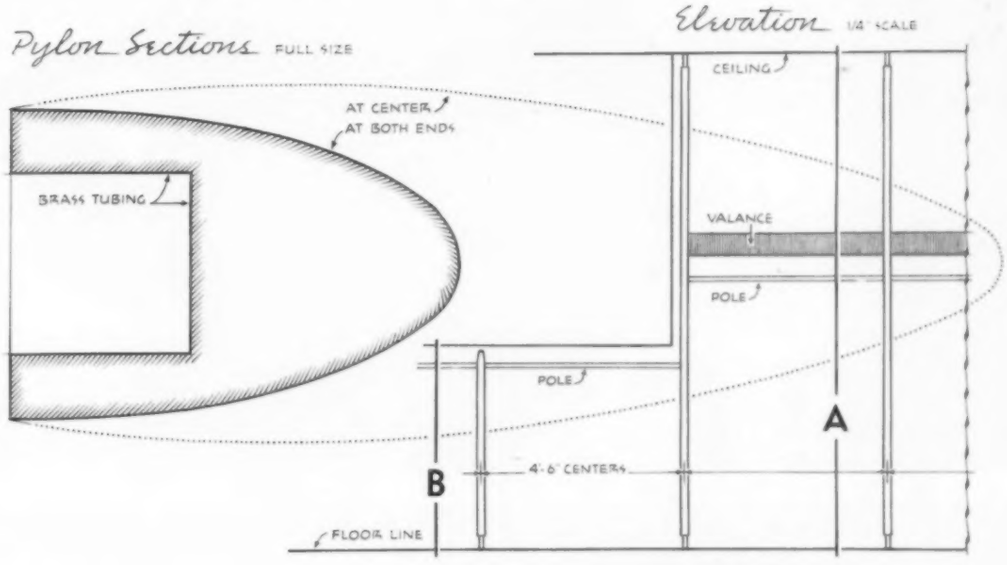


Paul Peters





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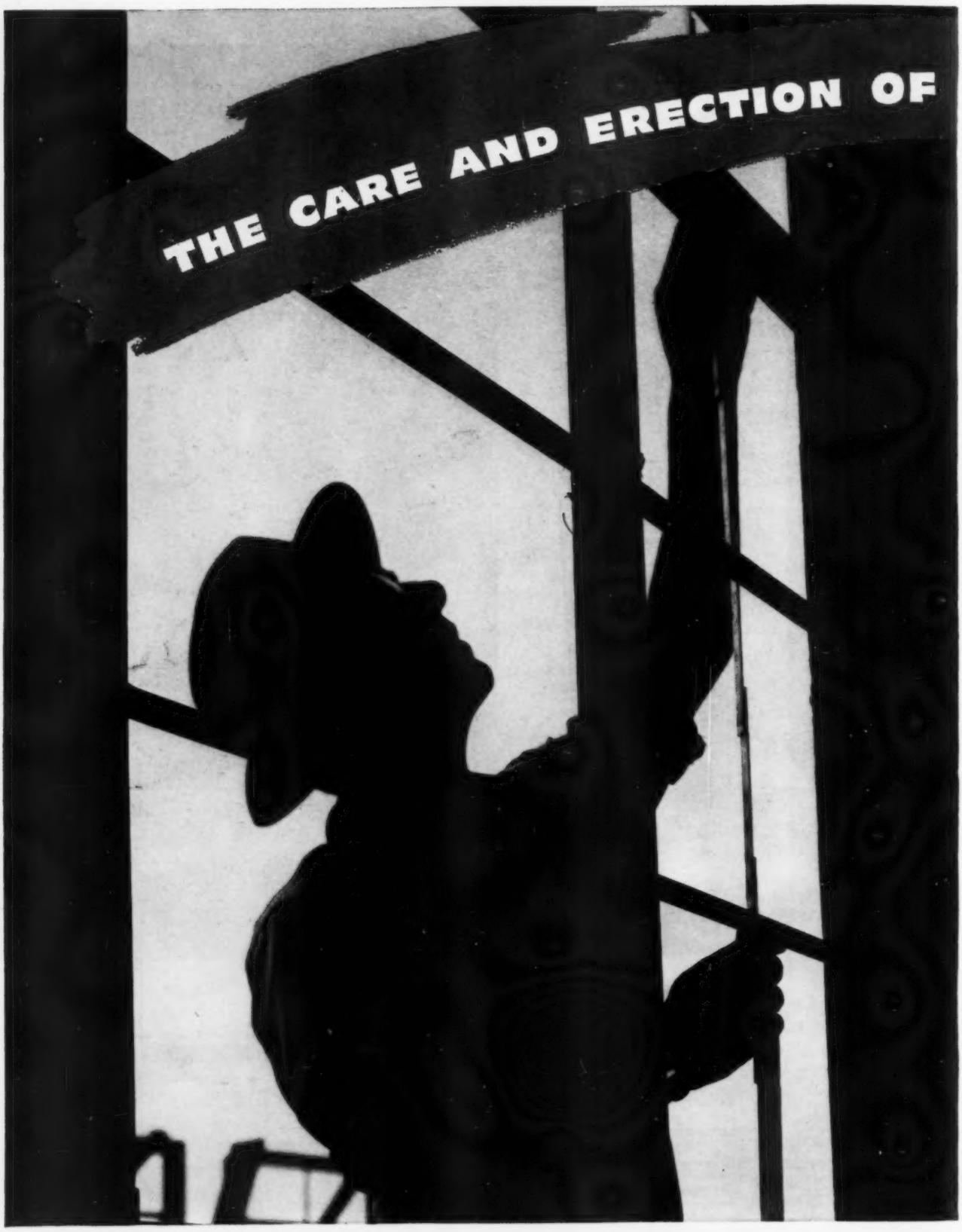

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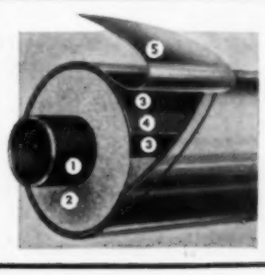

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FROM THE TECHNICAL PRESS

By JOHN RANNELLS

FROM OTHER PUBLICATIONS

On Understanding Color. *Faber Birren.* Illuminating Engineer, *51 Madison Ave., New York 10, N. Y. July 1948.*

A critical article, pointing the dangers of the narrow engineering approach which uses only equations and gadgets (light meters, brightness meters, etc.). In this sense the human eye is looked upon as a photo-sensitive mechanism, and little else.

The author, sensibly, takes in more territory and considers how we actually respond to our visual environment. His wide experience in industrial use of color should get him serious attention by the illuminating engineers, many of whose pet theories he attacks.

Report of Joint Committee of the Illuminating Engineering Society and the American Public Health Association. Illuminating Engineering. *July 1948.*

Formed in 1947 "to review the relationship of light and vision, to study a rational basis for the quality and quantity of illumination and develop a list of researches desirable for further knowledge and cooperative effort," the joint committee has found that the differences between the practicing engineers and the laboratory scientists are not great. When seeing conditions for a seeing task are specified the levels of illumination considered desirable by the two groups are not far apart and can be compromised satisfactorily.

The committee has issued one tentative standard in classroom lighting, but the "experimental evidence at present available is insufficient to justify its recommendation as a scientific basis of an ideal level of illumination for many given tasks."

The research projects which are being outlined by the committee (on lighting, on visual phenomena, and on their interrelations) will supply the basis for establishing standards scientifically rather than on engineering judgment alone.

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Panel Type Compartments For Utility and Economy

For buildings in which toilet compartments must withstand rigorous service and where economy is a factor, Weisteel Panel Type is a wise specification. Their durability and long-run utility have been proved in 38 years of nation-wide use. Now,— bonderized, galvanized steel, finished in high-temperature baked synthetic enamel, assures practical freedom from rust, plus long years of extra value service. Where utmost utility per dollar of cost is important, you can depend on these well-designed, quality-built compartments.

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MANUALS, PAMPHLETS

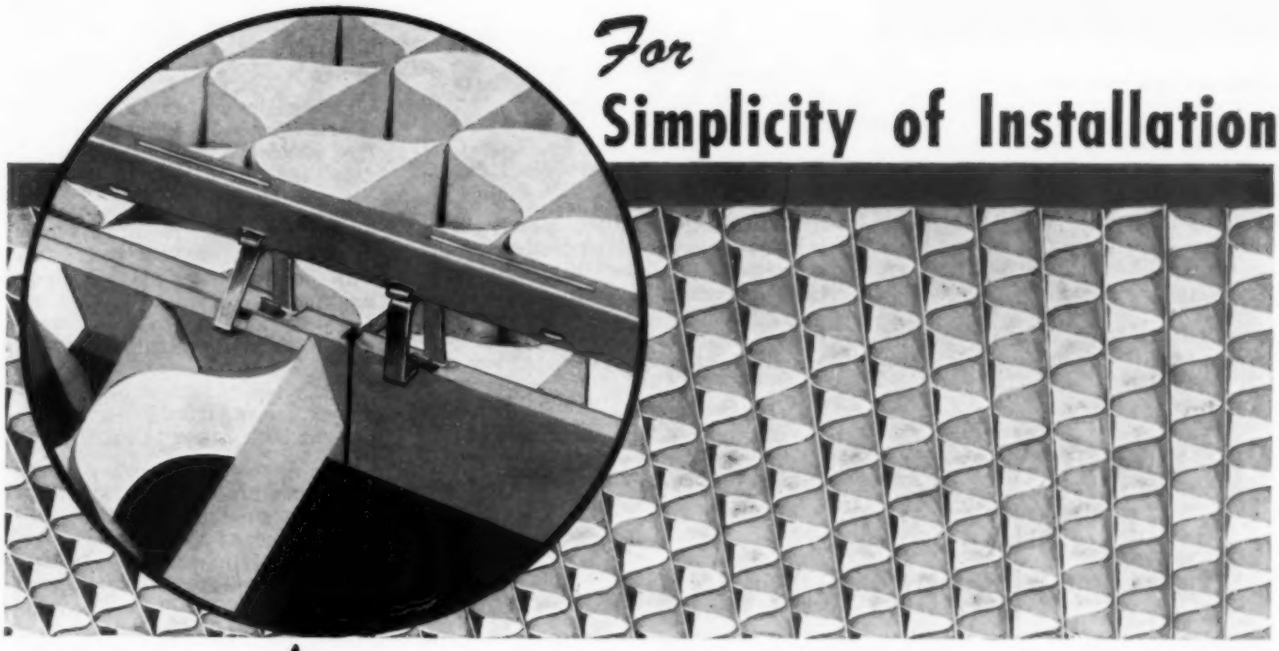
Housing Research Survey. *Department of Education and Research, The American Institute of Architects, Washington 6, D. C. Education News Letter 2 and 3, February and June 1948.*

A master outline covering all sorts of subjects tells where the various types of research are being done. Reports from the various schools or private institutions outline the facilities, objectives, and projects under way.

This exchange of program information, brought about by the AIA Dept. of Education and Research, should be most helpful in making the scattered research efforts of different institutions more effective.

The Church Building. *Department of Education and Research, The American Institute of Architects. Bulletin of the*

(Continued on page 122)



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Reviews

(Continued from page 120)

American Institute of Architects. May and June 1948.

Continuing the series on building types. Contains a well outlined bibliography with an extensive listing of recent examples published in periodicals.

Let's Build a House. *Engineering Experiment Station, Louisiana State University, Baton Rouge, La. Low Cost Housing Research Bulletin No. 4. 12 pp., 8½" x 11". Illus.*

An excellently written, clearly illustrated elementary introduction to the problems of house buildings: site selection, financing, orientation, landscaping, mechanical plant, etc. The middle spread has plans elevations and perspectives of four excellent low-cost four-room houses. Planning of efficient storage units is fully discussed and illustrated.

Lighting Design. *Parry Moon and D. Eberle Spencer. Addison-Wesley Press, Inc., Kendall Sq., Cambridge 42, Mass. 1948. 482 pp., 6" x 9", illus., bibliog., index. $5.00*

A thorough text, presenting fundamental principles quantitatively, together with design methods for high-quality lighting. A difficult text, with no predigested rule-of-thumb solutions, written in cryptic terms, not too clearly explained. Publication of the authors' forthcoming "unofficial guide to photometric nomenclature" should make the present book easier to read.

The purpose of the book is to formulate with some precision the general principles that govern ideal lighting, principles (based on the physics of radiant energy) only now taking definite form. The development of those principles is traced through the extensive literature by pointed references to a generous bibliography, organized by chapters. To quote from the preface: "The book attempts to point the way to the lighting of the future by developing methods that will give truly satisfactory lighting for seeing. Proper lighting is of such vast importance to the human race that there is no excuse for continuing the haphazard design methods of the past."

The material has been taught for some years at M. I. T. and at Tufts College. Its more general use will benefit the entire illuminating engineering fraternity by broadening the scientific base of their regular practice.

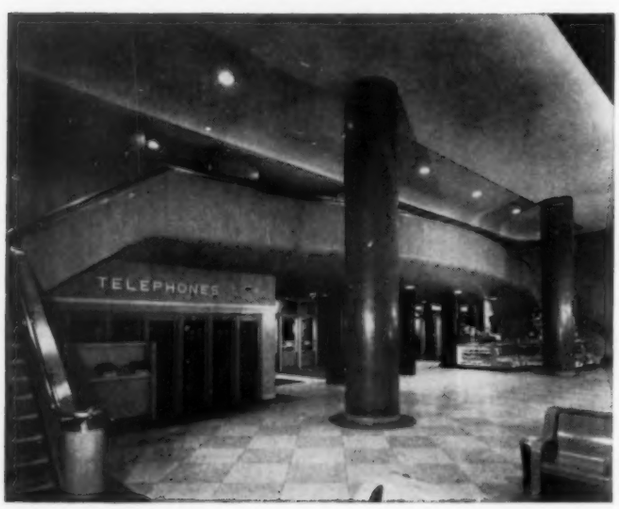
Application of Engineering Principles to Structural Design. *Herbert L. Whittemore, John B. Cotter, Ambrose H. Stang and Vincent B. Phelan. Building Materials and Structures Report BMS 109, of the National Bureau of Standards, U. S. Dept. of Commerce. Government Printing Office, Washington, D. C., 1948. 135 pp., illus. with charts and tables. $1.50 (For sale through Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)*

This is a sober and comprehensive report on the structural design of houses, analyzing or reanalyzing all factors of loading and strength of materials. As the authors say, "In the past, engineering principles have been applied to the manufacture of new materials, but not to the house as a complete unit." The study, the authors claim with justification, "makes it practicable to develop house constructions that have sufficient strength with the least amount of material at the lowest cost of fabrication." There remains the need for designers to translate the factual data available in this booklet into actual design, to discover what real savings may accrue.

T.H.C.

(Continued on page 124)

FLEXWOOD HELPS MAKE A PERFECT SETTING



Notice how architect William S. Arrasmith curved the quartered oak Flexwood against the grain to a sharp radius on a compound curve. With no other form of wood is this beautiful effect so practical and economical.

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So remember Flexwood . . . for new construction or remodeling. You'll find it easier to design strikingly beautiful interiors that mean satisfied clients.

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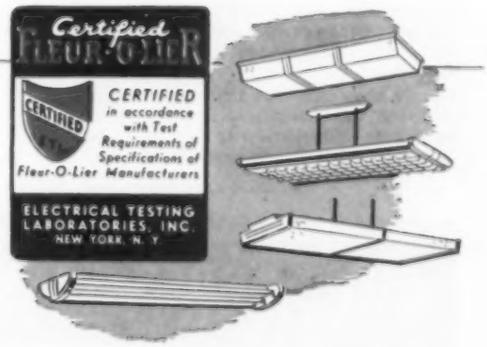
That's why we say, "The Fleur-O-Lier label on a lighting fixture is your protection . . . your assurance of customer satisfaction."

*Participation in Fleur-O-Lier is open to any manufacturer wishing to qualify. Consequently, the number of Fleur-O-Lier manufacturers is increasing constantly.



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Reviews

(Continued from page 122)

Task. *No. 7/8, 1948. Published by* Task, *P. O. Box 117, Cambridge 38, Mass., 96 pp., illus. $1.00*

This, the first postwar issue of the stimulating and provocative magazine which was originally conceived by a student-teacher group in Cambridge, is edited by an impressive board including Catherine Bauer, J. L. Sert, Christopher Tunnard and others. The publication continues to do ably what it should do—present serious discussion material on planning and architecture which a commercial magazine cannot very well cover, and which no association journal at the present time sees fit to present.

The first part of the present issue is devoted to a series of articles on reconstruction abroad. They are brief and to the point, and authors such as Gropius on German, Dudok on The Hague, Bauer on France, Blumenfeld on U.S.S.R. and others equally competent point out clearly by specific studies that the crisis in planning and especially housing is world-wide in its implications. The second part of the issue is, in the opinion of this reviewer, much weaker. Despite an excellent article on "The Housing Impasse," by Richard F. Watt, the general impression is one of vague pleadings for more "art" and less "engineering." When the designers of buildings have taken full advantage of the technical developments which are available, this curiously anachronistic plea may have more validity. There is at the end a useful bibliography of bibliographies on planning.

T.H.C.

THE BARCOL OVERdoor

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FOR PUBLIC GARAGE SERVICE ENTRANCES

Barcol OVERdoors and Barber-Colman Electric Door Operators are the ideal combination for openings in public garages, automobile agencies, service stations, and other establishments where traffic is heavy. They operate easily, quickly, efficiently . . . provide convenience and valuable time-saving both to garagemen and their customers.

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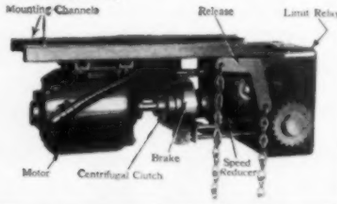
Dependable Barcol Electric Door Operators increase convenience, minimize time-loss, heat loss, operating costs. Applicable to most types of installations.



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BOOKS

ELIEL SAARINEN

Albert Christ-Janer. University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill., 1948, illus. $15.00

Albert Christ-Janer is a neighbor of Eliel Saarinen's at Cranbrook Academy of Art, Michigan, and as museum director there, has been fortunate enough to live among and work in some of Saarinen's best buildings located on the campus. The possibility for a biographer to observe his subject's daily life, work, and teaching is indeed a rare opportunity.

The book opens with a sensitive foreword by Alvar Aalto. The biography is divided in two parts; the first devoted to work in Europe and the latter part to work in America. Before meeting Saarinen, the architect, the reader is carried well into Finland's early struggle for independence. Eliel Saarinen's father, a Finnish pastor in Lutheran Church, is presented as a great free thinker and moving spirit in the troubled days of Finland. In the atmosphere of a nation trying to develop its own culture and express its freedom of thought, together with the pioneering spirit of his immediate family, Eliel Saarinen was reared. This should be highly significant in the life of any young creative artist living in the thick of it. Saarinen showed this same spirit in his architecture in breaking with dogma and eclecticism. But, alas, all this begins and ends with the mere telling of it. The biographer's role to analyze is not assumed.

Numerable city planning projects of Saarinen are mentioned. But what of his political and social theories that go hand in hand with city planning? *This is the crux of it,* not the idle pattern of a plan. But it is not discussed. Since these projects are mentioned, it should

(Continued on page 126)

A clock in the floor?

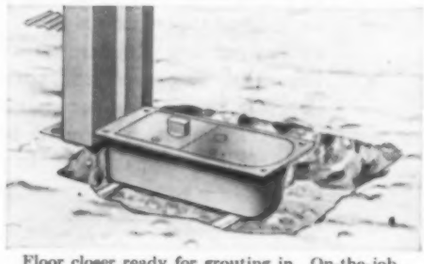
. . . Novel idea, perhaps, but the floor is no place for a clock . . . *or a door closer!*

• Why? Because floor dirt, scrub water and tracked-in weather would soon ruin the clock. They always foul up door closers placed in the floor, too, boosting the owner's maintenance costs and calling for replacements too soon for sensible economy.

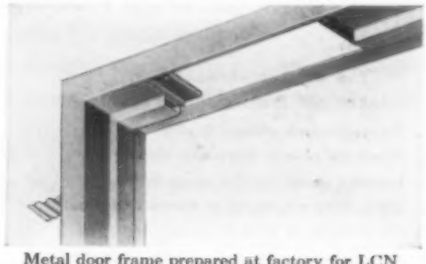
We're NOT prejudiced; we've made many thousands of the world's finest floor type closers, and still make them for people who want to conceal the closers, but for structural reasons cannot put them overhead.

Door closers belong overhead, not underfoot!

LCN overhead concealed door closers are hidden in the head frame or top of door, out of sight and safe from fouling. They do a superior job of door control at generally lower installed cost and lower maintenance cost. LCN catalog 11-b, with 33 pages of pictures and data showing how to select the best closer for each door, gladly sent on request. Address LCN Closers, Inc., 466 W. Superior St., Chicago 10, Ill.



Floor closer ready for grouting in. On-the-job labor, special thresholds and other extras tend to make floor installation costly.



Metal door frame prepared at factory for LCN overhead concealed closer. Wood frames simply prepared at low cost.

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ARKWRIGHT

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AMERICA'S STANDARD FOR OVER 25 YEARS

Reviews

(Continued from page 124)

not be necessary to search for some other document to complete the story.

One is impressed by the fact that while Eliel Saarinen was still a student at the Polytechniska Instituet in Helsingfors he opened an office with two partners. This is casually mentioned. What a chance to weigh that great opportunity then, with our present degree and license-ridden educational system in these days of "*progress.*" Saarinen is also an educator! What are his views? Indeed he has them. In the conflicting systems of architectural education offered to the young student today, there is need for comment and clarification by one of the very few educators who has continued "to do" as well as to teach.

The reader's imagination is intrigued with Hvittrask, the studio-home of the Saarinens' and the Helsingfors firm he helped form. It was these early years of his architectural career that are spoken of in the foreword as the "laboratory period." But what of the "laboratory period" of contemporary architects elsewhere by comparison?

The great milestones of Eliel Saarinen's career are clearly mentioned as such. As milestones Christ-Janer should have sunk his teeth in them. Have you ever seen the lions at Central Park Zoo fed the great hunks of raw meat and listened to them roar? Well . . . !

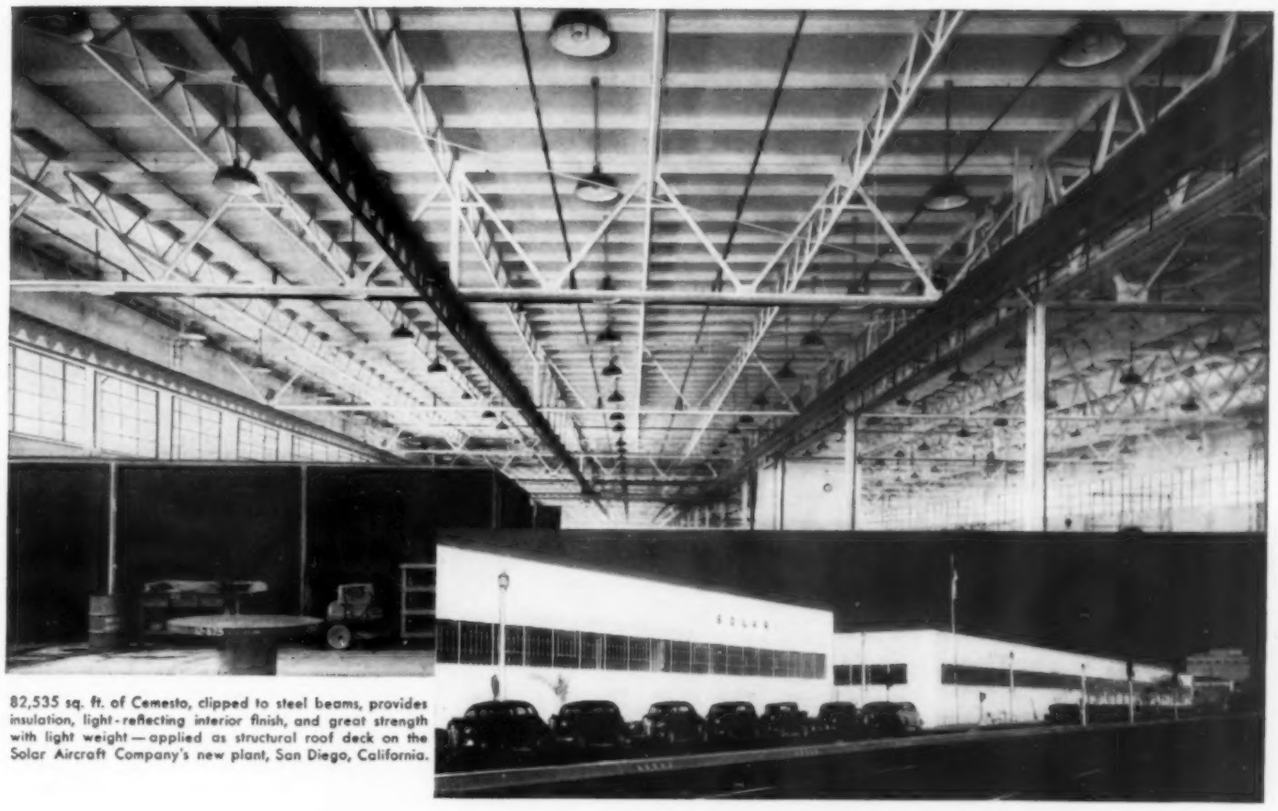
The direct quotations in the book from Saarinen himself act as a needed transfusion. In one he says, ". . . the museum and library at Cranbrook has a special place in my estimation . . .". For a man who has spent his life in "search for form" this is particularly revealing.

The numerous American buildings are the best presented. Sufficient plates cover the major works. Yet to read in the foreword, ". . . he refused to yield to sentimental romanticism when the general trend was romantic," and further on, ". . . suspicious alike of romanticism and stern classicism . . ." raises a question as certain plates are studied.

There is rich thought in Eliel Saarinen's further contribution to this book. Many architects will nod in understanding. He remarks, "One had to go back to the period when employment of material was honest . . ." and ". . . absolute freedom . . . is too idealistic, the imagination does not work soundly when it is free from difficulty . . ." and again ". . . creative art cannot be taught by others. Each must be his own teacher."

There is such a purity of expression in the book that it becomes sterile. The plates are numerous and comprehensive. The composition and quality of the Cranbrook plates are especially good.

(Continued on page 128)



82,535 sq. ft. of Cemesto, clipped to steel beams, provides insulation, light-reflecting interior finish, and great strength with light weight—applied as structural roof deck on the Solar Aircraft Company's new plant, San Diego, California.

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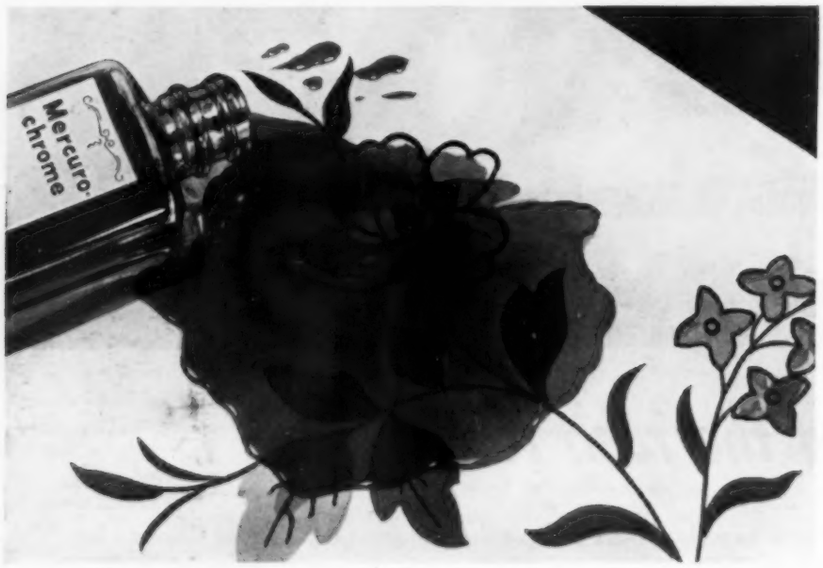

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Reviews

(Continued from page 126)

It is understandable to see the tributes dignified and restrained, but the studied refinement in this work to present just the salient facts has been carried too far. As a profusely illustrated chronology, accurate to the last detail and date, it is excellent, but that is the sum of it.

I am missing some word about the man. So much could be told about Eliel Saarinen as an outstanding personality of rare wit and charm, his great work at Cranbrook, his warmth as a host, and what he has meant to so many students. Architecture cannot be intelligently discussed free from environment and people, and by the same token no architect's work can be divorced from his personality. And furthermore, even the most academic reader likes a little butter on his bread.

In sentences here and there, the book brings out that the great motivating powers of this man to create so many outstanding works are: his constant search for fundamentals, the demand in himself for perfection, his ability to grow, his desire and willingness to change with the needs of the time, and his ability to temper idealism with realism. This is so true, but his architecture could have been discussed more on its own merits and against contemporary works of selected buildings to confirm this.

PAUL PIPPIN

EARLY CONNECTICUT MEETINGHOUSES

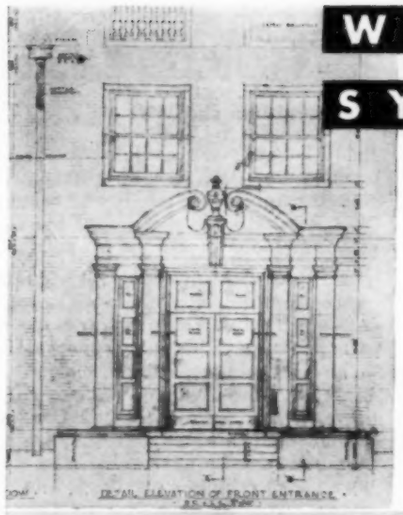
J. Frederick Kelly, Columbia University Press, Morningside Heights, New York, N. Y., 1948. Vol. I, 332 pp.; Vol. II, 360 pp., Illus. $40.00 a set

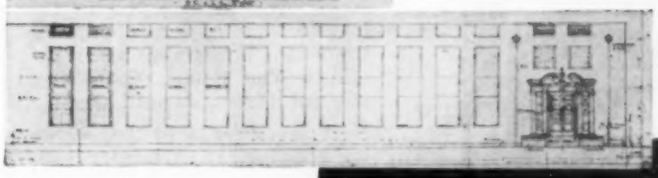
The author who so capably acquainted us with the domestic architecture of early Connecticut now presents to us another contribution of extraordinary scope and thoroughness. It deals with Connecticut meetinghouses from earliest Colonial times to the beginning of the Greek Revival in 1830. The often absorbing text brings to the reader a quickened appreciation and respect for a precious American heritage. A fascinating introduction is filled with human, historical, sociological, and technical interest. Separate chapter-accounts of 87 meetinghouses, and descriptions of others destroyed or replaced, are accompanied by numerous photographs, a map, plans, and sections of roof trusses. The bibliography is impressive.

To Mr. Kelly the meetinghouse was a symbol of the New England way of life

(Continued on page 130)

WALKER UNDERFLOOR SYSTEMS ENGINEERED FOR *Modern* BUILDING DESIGN





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John C. Van Balen
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ROLLING DOORS

Reviews

(Continued from page 128)

and thought—the nucleus of the local community—the seat of government—the birthplace of the town meeting—". . . a tangible expression of the vigorous and determined public spirit. . ."

Our forefathers, intense individualists, were profound believers in an organized society. Their determination in the face of harrowing odds made epochal their achievement. State-established ecclesiastical societies defined boundaries and gave groups certain powers. Congregationalism dominated until the political revolution, culminating in 1818, swept away such religious privilege. The Episcopal church, introduced in 1702, for long encountered fierce opposition. Other Protestant faiths were variously represented. The Roman Catholic religion was not introduced until about 1830.

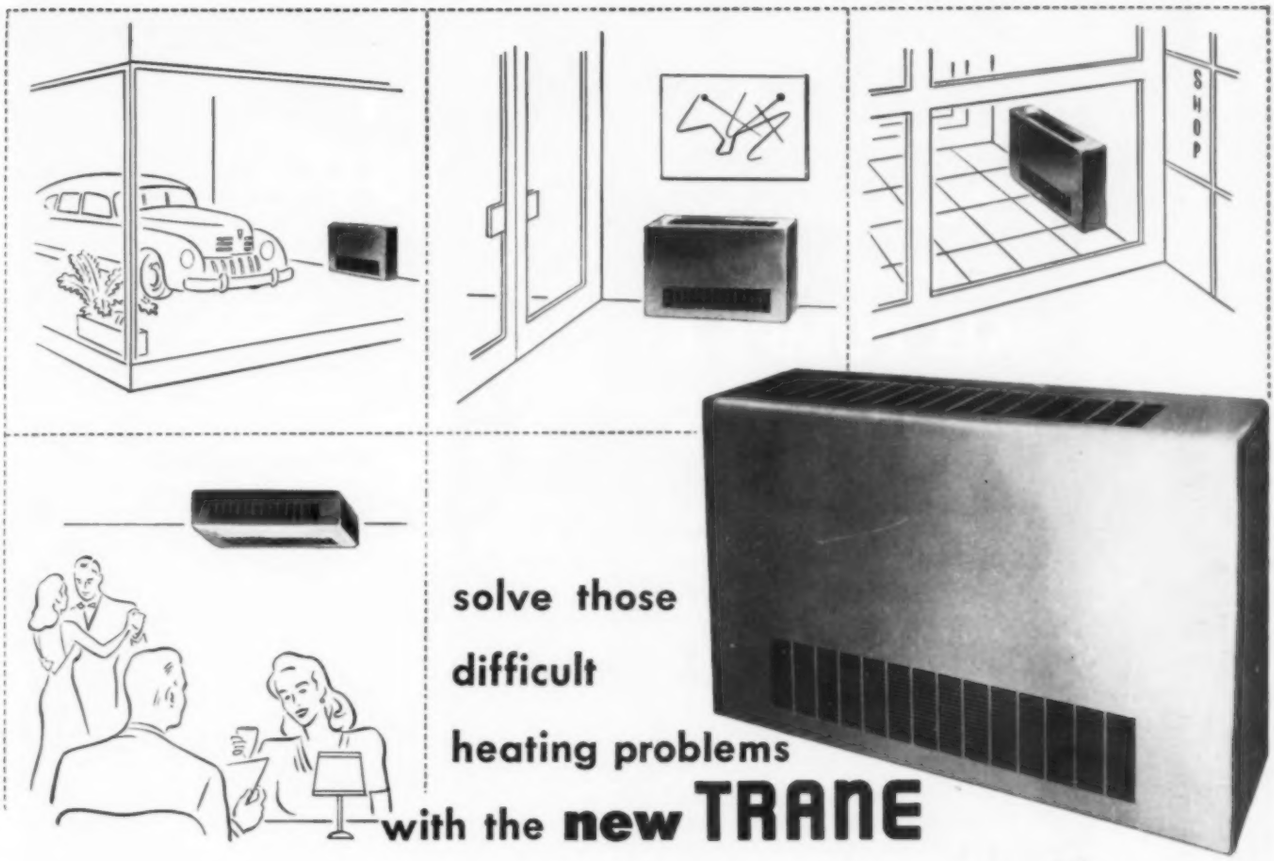
Early members taxed themselves to pay for building. Later, money was raised through subscriptions. Members were sometimes allotted the production of timbers, trusses, even of pews. Later "proprietors," in groups, assumed costs, being recompensed later by selling seats. An occasional lottery was permitted. Site selection sometimes developed quarrels—and even splits in congregations.

At first attendance was enforced; a drum called members to worship; sentinels watched for Indian attacks, while designated members sat armed. Seat positions were allotted by rank—or "dignified." A tithing man carried a stick—to punish some boy, or awaken a sleeper. Men combatted cold by drawing sacks over the feet, and women by carrying hot stones in muffs. Central heating was for long opposed. "Sabbaday" houses near by provided heat during the "nooning." Singing by note was substituted for singing by rule—"organized discord." Flute and bass viol gave way to the melodeon, and that later to the organ.

Four building stages are traced. Structures of the *first two* have disappeared. With the *third* came finished moldings with a Georgian robustness, and an orientation parallel to the street front with the pulpit centering the short axis. The *fourth* stage is the ultimate expression. The long axis is reversed. Now comes a more sophisticated architecture, an Adam influence, an increased love of beauty. The influence of Wren is seen in towers starting from the ground, and of Gibbs in later towers set back on the roofs. Two architects emerge—David Hoadley and Ithiel Town.

During the Victorial and Greek revivals a "holy zeal" tore out much superior work, to be replaced by inferior—a fate too familiar to the various periods of architectural history! Despite church rebellions, feuds and tempers, the extraordinary fact that impresses

(Continued on page 132)



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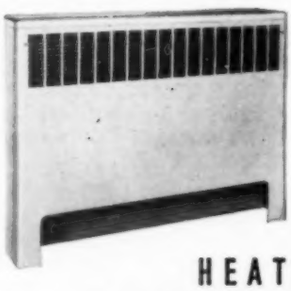

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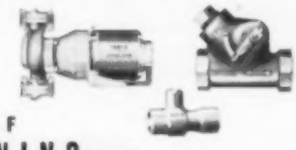

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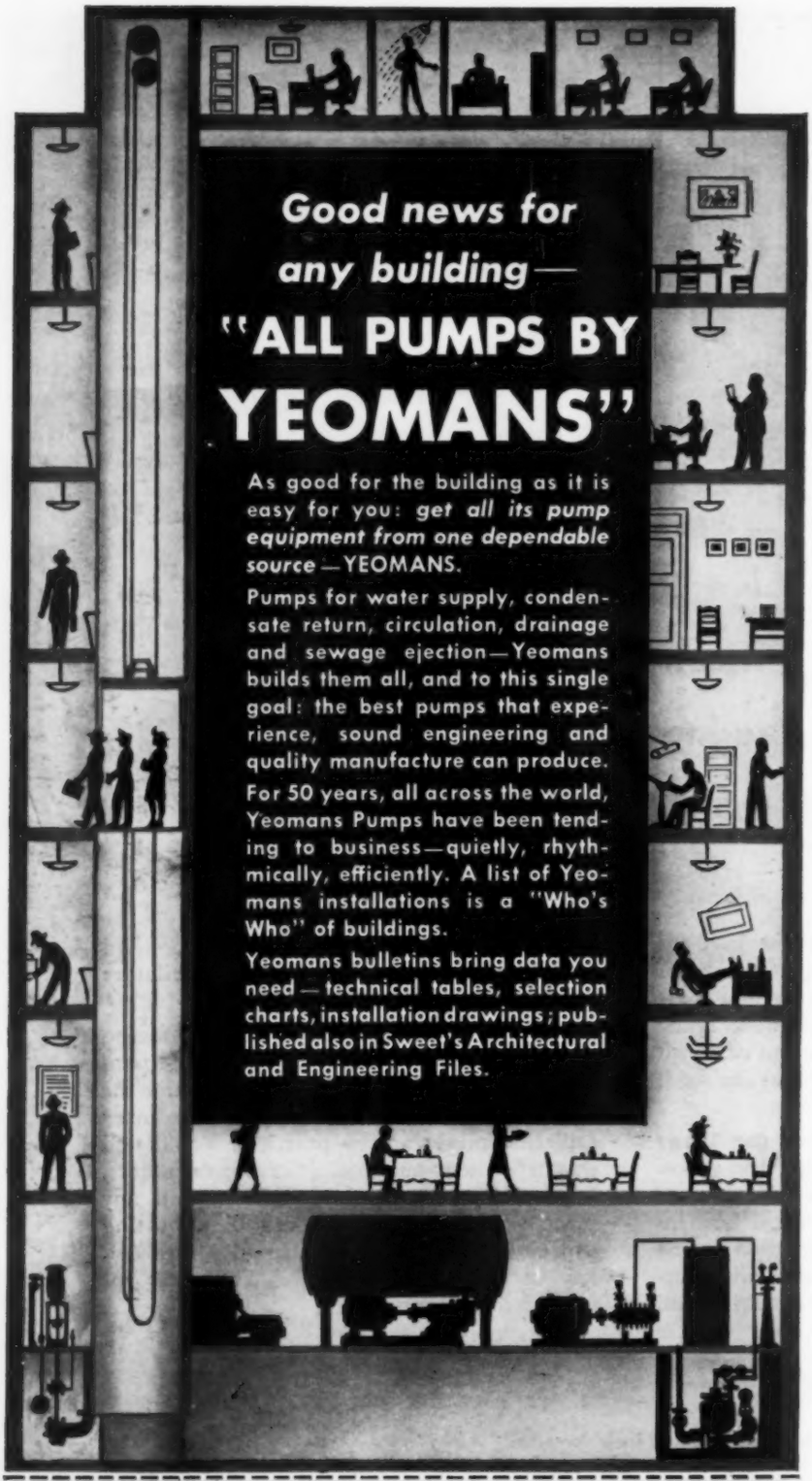
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Reviews

(Continued from page 130)

was the self-sacrificing spirit which produced so amazing an accomplishment. Character produced these meetinghouses, and meetinghouses helped to mold character.

In summation, may we salute the memory of Mr. Kelly, who died September 1947, as this fine work went to press.

GREVILLE RICKARD

ANCIENT ADOBES

Santa Barbara Adobes. *Clarence Cullimore. Printed by Merchants Printing and Lithographing Co., Bakersfield, Calif., 1948. 250 pp., illus. $4.90*

Pen sketches of some 45 historic adobe buildings in Santa Barbara, California, and chatty accounts of the history of each comprise this book by a Bakersfield architect appreciative of the Colonial culture that was shattered by arrival of the Yankee gold-seekers in 1849. A memento for California Centennial observances, this also is a pleasing record of the ultimate dilution of Hispano-Moresque architectural influence—in a remote frontier settlement that readily adapted the Indian custom of building shelters with the earth of the site.

C.M.

HOME FURNISHING

Anna Hong Rutt. *John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. Second Edition 1948. 508 pp., illus. $6.00*

This compendium of suggestions, ideas, opinions, examples, research information, and "horrors" of house design and furnishing is, at first glance, strongly reminiscent of an old-fashioned *Home Medical Adviser*. But the persistent amateur decorator can find this a helpful reference book and architects can rejoice in the sober respect shown by a writer in this field toward contemporary houses and interiors. This revised edition contains some up-to-date rooms, as well as the historic examples.

C.M.

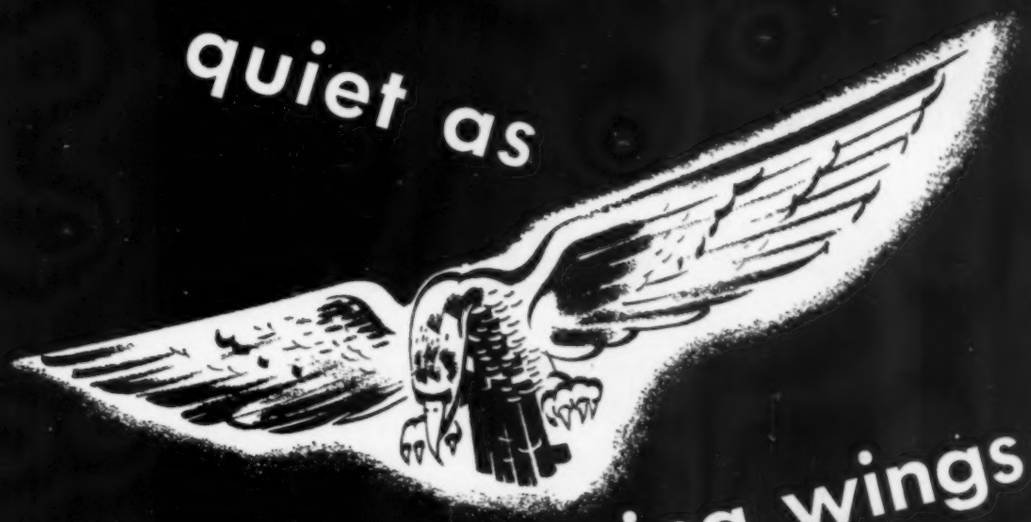
CAMP SITES, BUILDINGS

Camp Site Development. *Julian Harris Salomon. Girl Scouts of the U. S. A., 155 E. 44th St., New York 17, N. Y. 1948. 105 pp., illus. $4.00*

Prepared as a guide for those who have responsibility for planning and developing camps for Girl Scout troops, this book has practical information for anyone who wishes to create vacation facili-

(Continued on page 134)

quiet as soaring wings



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Reviews

(Continued from page 132)

ties. The author recommends planning for not more than a five-year program—an organizational caution, but also a safeguard generally against the dilapidation and obsolescence all too common in mountain and shore camp spots.

C.M.

GREAT PIONEERS

Architects of the Modern Movement. *Nos. 1, 2, and 3 of a series* of critical essays with condensed biographies of leaders of the contemporary development in architectural design, written by Italian professionals.* **William Morris** *by Giancarlo De Carlo.* **Giuseppe Terragni** *by Mario Labò.* **Frank Lloyd Wright** *by Bruno Zevi. Il Balcone, Via Sandri 2, Milano, Italy. Each 4¾" x 6¾". No. 1—90 pp., illus., 400 lire (75c); No. 2—129 pp., illus., 500 lire (90c); No. 3—134 pp., illus., 500 lire (90c).*

A short history of Europe of the 18th century, of the Age of Rationalism, and of the early 19th century is offered by De Carlo in his *William Morris*, in addition to biographical notes, a bibliography, and a criticism of Morris' work. Thus is given a picture of the attitude of artists of that time and in particular the attitude of the architects, living in a world of their own completely outside the social and technical changes of the period.

Morris, born in 1843 of rich parents, had a varied career as architect, painter, writer, and political reformer. He was one of the first to go against the traditionalists.

"To create an art which is alive," he wrote, "one has first of all to interest the people in art. Art must become a part of their lives as much as water and light. I can't conceive of art as a privilege of a few, as I can't conceive of education for a few or liberty for a few."

So instead of creating furniture for the nobility he started a school for artisans. He designed and constructed every kind of object for the house, doing much manual labor himself among his workmen. Morris studied and experimented on everything, explored all civilizations without prejudice, to get ideas to propose to his contemporary artists. His teachings were followed and propagated by many young architects of the time. These architects dedicated themselves

* *In preparation: "Auguste Perret" by Ernesto N. Rogers; "Eric Mendelsohn" by Gillo Dorfles; "Alvar Aalto" by Giorgio Labo; "Tony Garnier" by Guia Veronesi; "Henry Van De Velde" by Ernesto N. Rogers; "Mies van der Rohe" by Max Bill.*

(Continued on page 136)

FOR A CLEAN, QUIET STORE TURN TO OIL HEAT . . . .

and for efficiency and economy, specify Petro!

Cleanliness is of primary importance to store owners. A clean store building means fewer losses chargeable to dirt-caused mark-downs . . . reduced cleaning and maintenance bills . . . less non-productive labor charged against overhead. That's why so many retailers — and store designers — are turning to oil heat as they plan new buildings or modernize old structures.

From neighborhood shops to metropolitan department stores, owners are reporting clean, economical, efficient heat delivered by PETRO oil-fired equipment. Specialists in store design echo their findings. Results like those commented on by Mr. Lapidus, at the right, have been duplicated by others — in stores heated by steam, vapor, hot water, and warm air alike.

Regardless of burner size, whenever top efficiency and low-cost operation are *first* considerations, PETRO Oil Burning Systems welcome your thorough investigation.

INDUSTRIAL MODELS: No. 5 or No. 6 fuel oil; manual, semi- or automatic operations; 8 sizes up to 450 bhp. Thermal Viscosity preheating.

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FULL DATA on Petro Industrial Burners are in catalog files of Sweet's and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

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cuts steam costs

Morris Lapidus of New York has designed well-known chain and department store buildings as far west as California and Texas. He is a specialist in the functional planning of store interiors, as well as in the design of exteriors and complete buildings. Experience like his make these observations particularly valuable to architects and engineers who are currently designing tomorrow's stores. Mr. Lapidus writes:

"In planning stores, one of the chief objects we have in mind is to keep the interior free from dust. The use of oil burning systems helps to eliminate the dirt resulting from other fuels, and produces clean, quiet surroundings. The retailer doesn't like to be a janitor, and the automatic operation of oil systems cuts down on his labor and labor costs.

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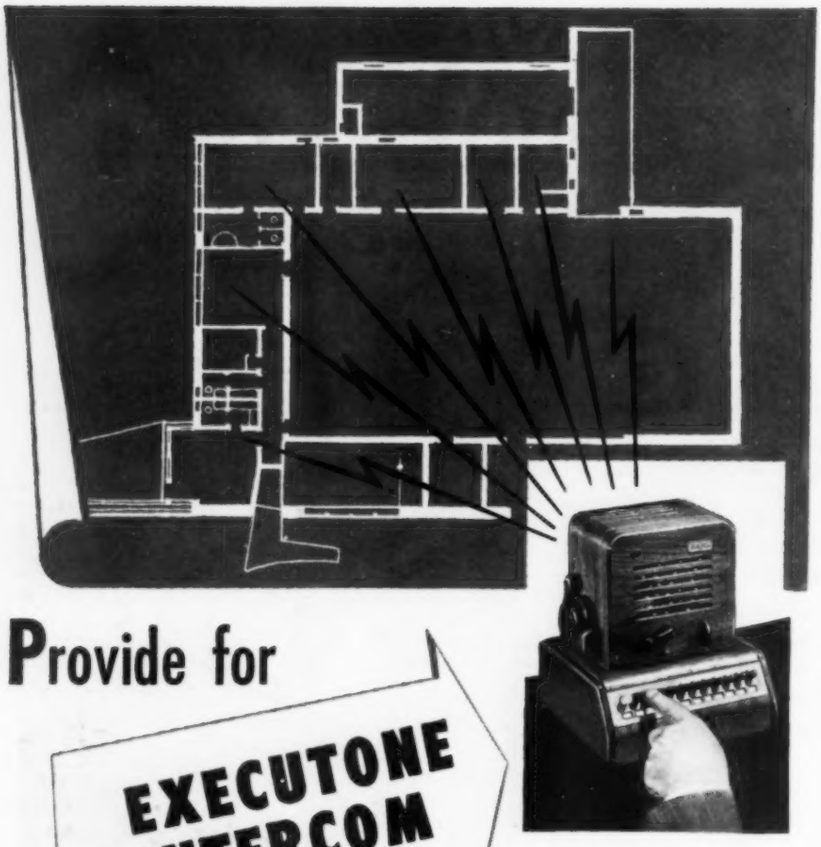

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Reviews

(Continued from page 134)

mostly to the applied arts, which had up to then been considered an unworthy occupation for an artist. In the work and doctrine of Morris is the fundamental premise for all the modern movement.

One of his pupils, W. R. Lethaby, in a lecture on arts and crafts, was the first to express the elements of the new and quite revolutionary ideas. He said, "We must begin humbly by cleaning our roads and whitewashing our houses. We must be careful that in making a railing we make a beautiful railing, in making a lamp post, a beautiful one."

By connecting the architecture of a city with the things in common use, the movement of arts and crafts opened the way to future urban activities. By enlarging the problem from a house to a city, the dream of a promised land described by Morris in his *News from Nowhere* seemed to become a reality which gave the people a new hope. The theories of Ebenezer Howard in *Garden Cities of Tomorrow* and their realization at Letchworth and Golders Green, showed how well founded these hopes were.

It is easy to see that the contribution of Morris to the development of the modern movement is of the greatest importance. But there is one part of his teachings which is, even today, the most alive and up to date—the part that deals with architects. With his work he showed that whoever wants to build for the people must be close to them, participating with them in their sorrows and problems, and fighting with them to get satisfactory results for their moral and material needs. To achieve his ends he took an active part in various political parties and intervened in many of their fights.

The teachings of Morris constitute the foundation of the modern ethical movement and give modern architecture its place in the fight for human liberties.

o

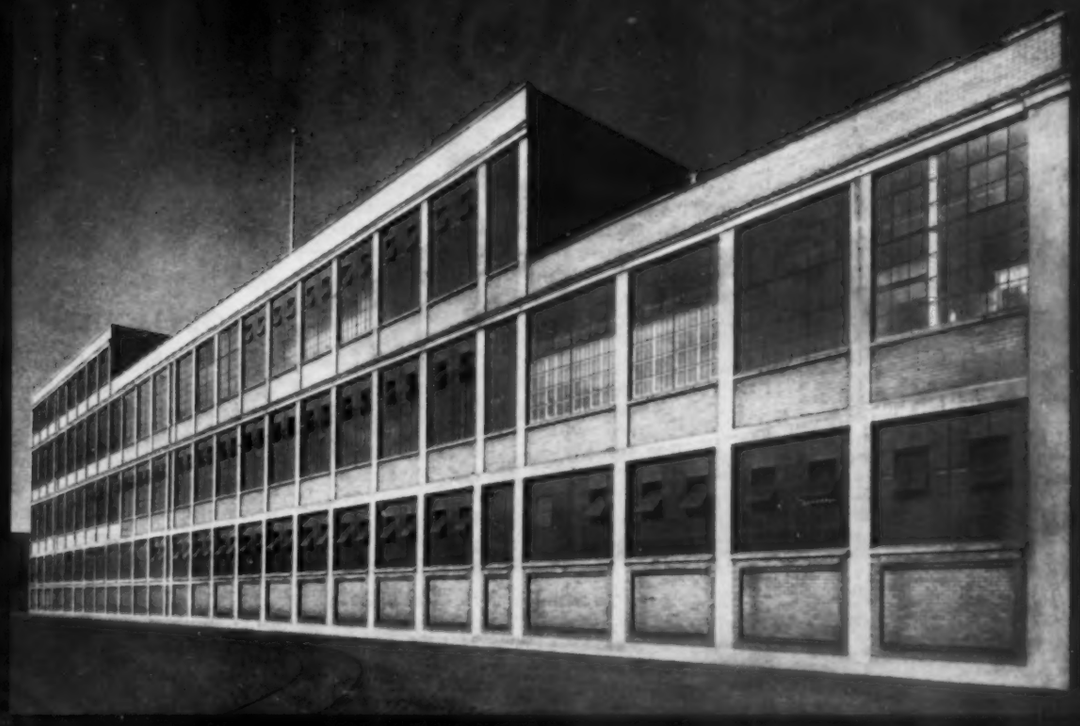
Giuseppe Terragni was born in Como in 1904 and died there, after returning from fighting on the Russian front, in 1943. Mario Labò, in writing about Terragni, gives major emphasis to his two principal works, "Casa del Fascio" and "Asilo Infantile," and to his many projects designed for competitions.

In 1926 Terragni was one of the "group of seven" who wrote articles on architecture. The group had learned about the artistic movement in Europe only from books and reviews, but had studied them with great intelligence. It was unfortunate that they were in complete ignorance of the puritanical negations of Loos and, worse still, of the articulate plans of Wright.

(Continued on page 138)

1818 HOPE'S 1948

LOK'D BAR FACTORY SASH



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ROBERT CLEVELAND PHOTO

Arrows point to two of the four Pathfinder Lights in the patio of the modern Case Study House No. 18, designed by Rodney Walker on Chautauqua Way in Santa Monica, California, sponsored by the magazine "Arts & Architecture".

NO OTHER LIGHT HAS AS MANY FEATURES—

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Ask for literature on other Cannon Electric products: Pilot Lights, Hospital Signal Systems, multi-contact electric connectors, sprinklers, grills, etc.

Bulletin No. PL-2 fully describes and illustrates the Pathfinder. Address Department J-293 for a copy.

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Reviews

(Continued from page 136)

Terragni was often criticized for being too international-minded (in the days when this was considered a crime in Italy). He also was accused of plagiarism from Rietveld, Raymond, and Mossowjet. This, in reality, was all to his advantage because it showed that, while architecture all over the world had at last found a common analogy it left room for individual expression. But his critics would not recognize this, either because they were insensible to it or were in bad faith.

From the characteristics shown by Terragni, without looking for any nationalistic purpose, in fact by refusing to do so, one can't but recognize him as an Italian architect. Terragni has his place among those who contributed to the renovation of a civilization by means of a new language, simple, realistic, and free of emphasis, but rich in ideas . . . inexhaustible in dialectics of construction.

●

Bruno Zevi, who is responsible for the modern movement in Italy, is also responsible for the diffusion of the ideas and works of Frank Lloyd Wright in that country, where not many have understood the American master. He has been badly copied and there has been much foolish criticism of him.

Therefore, in this essay, Bruno Zevi gives an outline of Wright's work and stresses the importance of his organic architecture. Zevi writes, "Beyond the artistic judgment on his edifices, we all have to be in accord that the exceptional merit of Wright is that he sees the problem of space as the fundamental one for his work."

To bring to the medium-sized house, the workman's and the farmer's, the feeling of space, of dignity, and of freedom from copybook architecture is the intention of all the modern movement, functional and organic. Wright is historically at the point of departure and at the point of arrival of this social research. The Prairie Houses and the Usonians are the proof. Considered from the outside, as a phenomenon, it looks as if only an hallucinated maniac could, in one lifetime, create the Prairie Houses, Falling Water, and the Guggenheim Museum. Instead they are the coherent results of a method to apply spatial creations for different purposes, with differing (technical) construction, and for differing needs. When we understand completely the architectural interpretation of space, we will discover that there is more coherence in Wright's architecture, apparently so arbitrary and so different in form, than exists in some functional architects who betray the true problem of architecture for a coherence which is purely formal and exterior.

(Continued on page 140)

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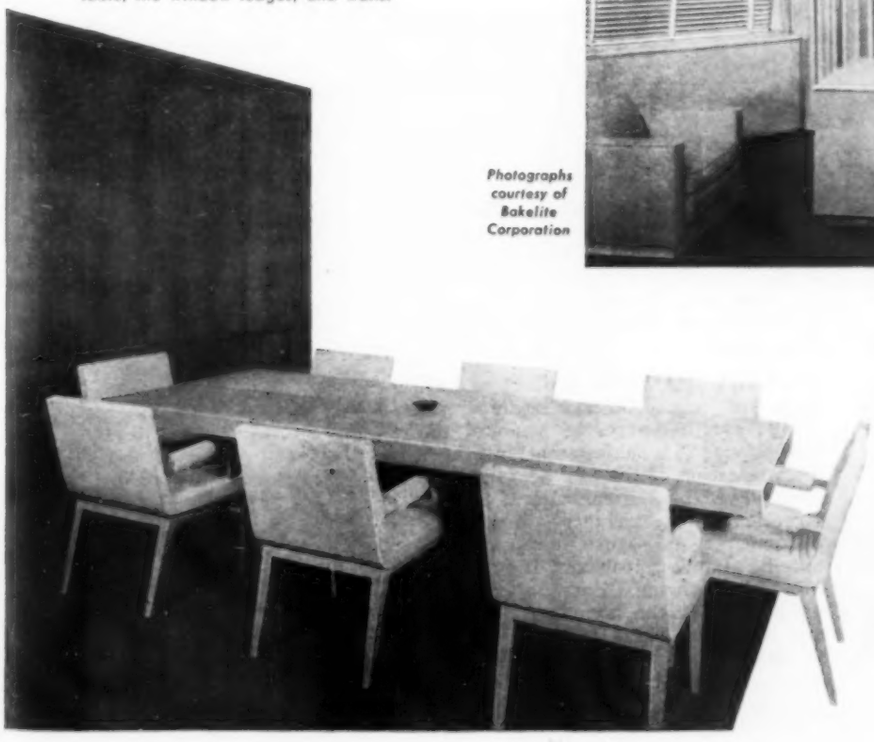
At the first conference here, the big guns were a little over-awed by the beauty of their Formica surroundings. Ever since, it's proved to be a real work room. Formica Realwood* on the table, the window ledges, and walls.

Photographs courtesy of Bakelite Corporation



A beauty, isn't it? Don't let the uncluttered desk fool you... that's just for the picture. A lot of work goes on in this office and the Formica* desk and window tables take a beating. The tops are Cigarette-Proof Formica.

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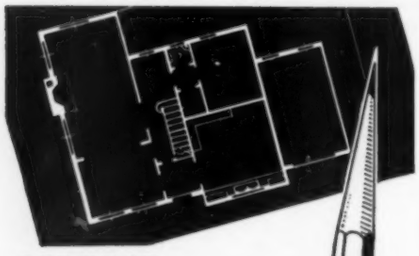

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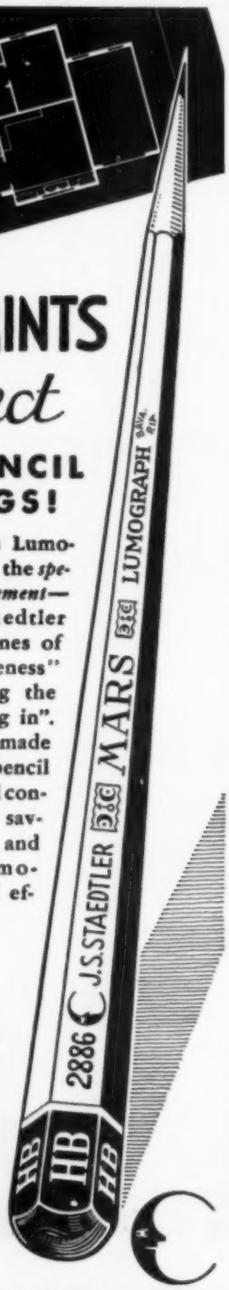

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Reviews

(Continued from page 138)

The vitality of Wright's structure, the strength of his edifices, the incredible technical courage, the continuing fecundity of his genius, can be explained in the light of this organic way of feeling that a building is something not only real but as something alive, growing, and human.

Zevi goes on to say "Only now Wright can be appreciated not as an esoteric genius but as the initiator of a movement which has been taken up by English, Swedish, and Italian architects.

It is logical that in Europe and particularly in Italy, where the critical spirit is more mature, organic architecture is going towards a deeper cultural research of great value. Modern architecture must answer not only social problems but also those of human personality. After the ravages of war and misery there is a greater need for all that is spiritual and religious, for which materialistic functionalism appears inhuman and insufficient. The complexity of human needs—material, spiritual, and psychological—gives organic architecture and its culture a problem of integration. This is why Wright's organic architecture, its moral appeal, and its spatial conquests appear today on the horizon of contemporary research not only as the sign of greatness of an architect, but almost like a signal showing the road to be taken with confidence—and of a work to be developed with passion and faith.

FRANCA MAUROGORDATO

HOSPITAL PLANNING

Transcript of the Institute on Hospital Planning *Conducted by the Council on Hospital Planning and Plant Operation of the American Hospital Association. The American Hospital Association, 18 E. Division St., Chicago 10, Ill. 244 pp., Illus. $5.00*

Transcript of a series of lectures held at the Institute in Chicago in the winter of 1947, with digests of some of the discussions. The subject matter ranges from selection of the architect, and the part played by the consultant, to construction costs, advances in hospital equipment, and some discussion of specific planning problems. Illustrations are line drawings, intended for the most part for the layman rather than the architect. There is little new material for the experienced hospital designer, but the book should be valuable to newcomers to the field.

T.H.C.

THE versatility of Gate City Awning Windows is demonstrated by the above photograph of a stair well in a prominent school in Maryland.

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DESIGN IDEAS:

Functions of Vitrolite in a Visual Front

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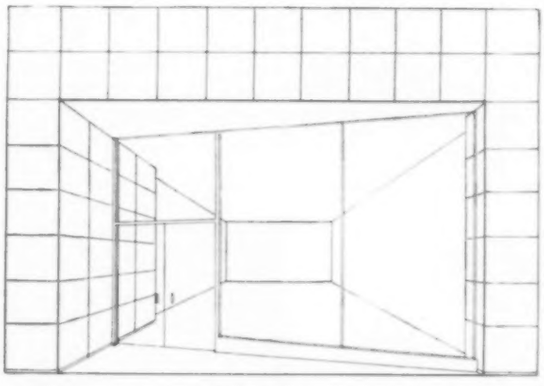
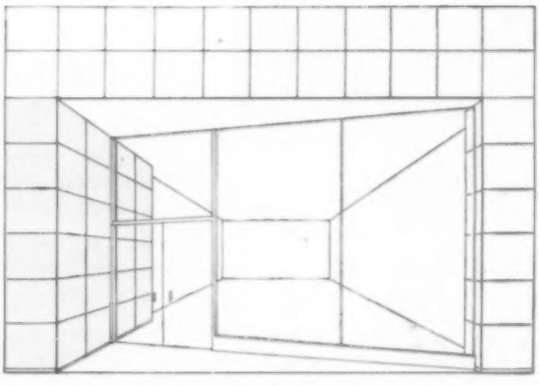
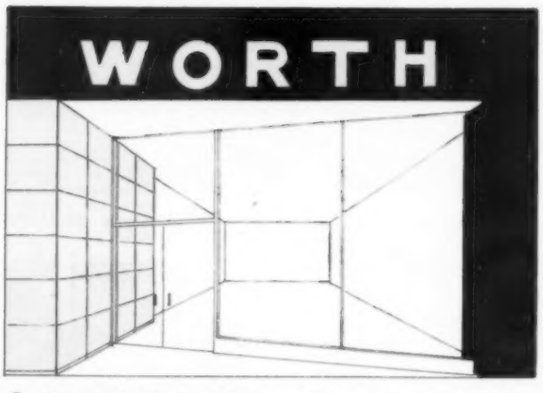


1. Here are the basic lines of a Visual Front, designed so that passersby see the entire store interior through a clear glass front. But glass can do more—it can direct attention to the front and the interior by effective use of *Vitrolite* facing on solid areas.



2. Alamo tan *Vitrolite* adds sparkling color to attract attention to the store. It starts at the sidewalk, extends through the clear glass front to unite exterior and interior and lead the eyes of shoppers into the store. *Vitrolite* makes the store more inviting.



3. Now add the sign fascia and pilaster in a contrasting color to complete the framing. To display the store name, its product or its trade-mark, sandblast the *Vitrolite* or laminate on the fascia a contrasting color of *Vitrolite*.

Here's color, beauty and practicality in a material that doesn't lose its look of newness, doesn't need refinishing. *Vitrolite* is made in cadet blue, peach, jade, red, light gray, Alamo tan, mahogany, white and black. Colors blend well with each other and harmonize with shades currently popular in interior decoration. Your L·O·F distributor will be glad to furnish factual data. Write for our book which illustrates *Vitrolite* applications in their true colors. Libbey·Owens·Ford Glass Company, 57108 Nicholas Building, Toledo 3, Ohio.

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(Continued on page 144)

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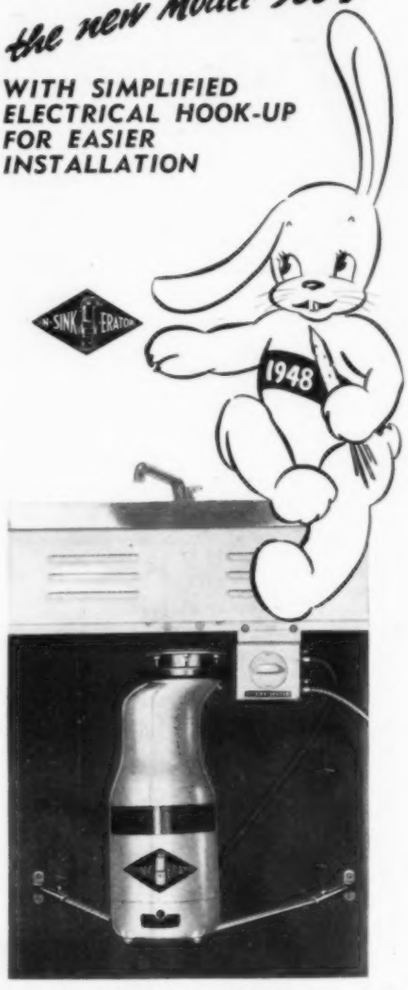

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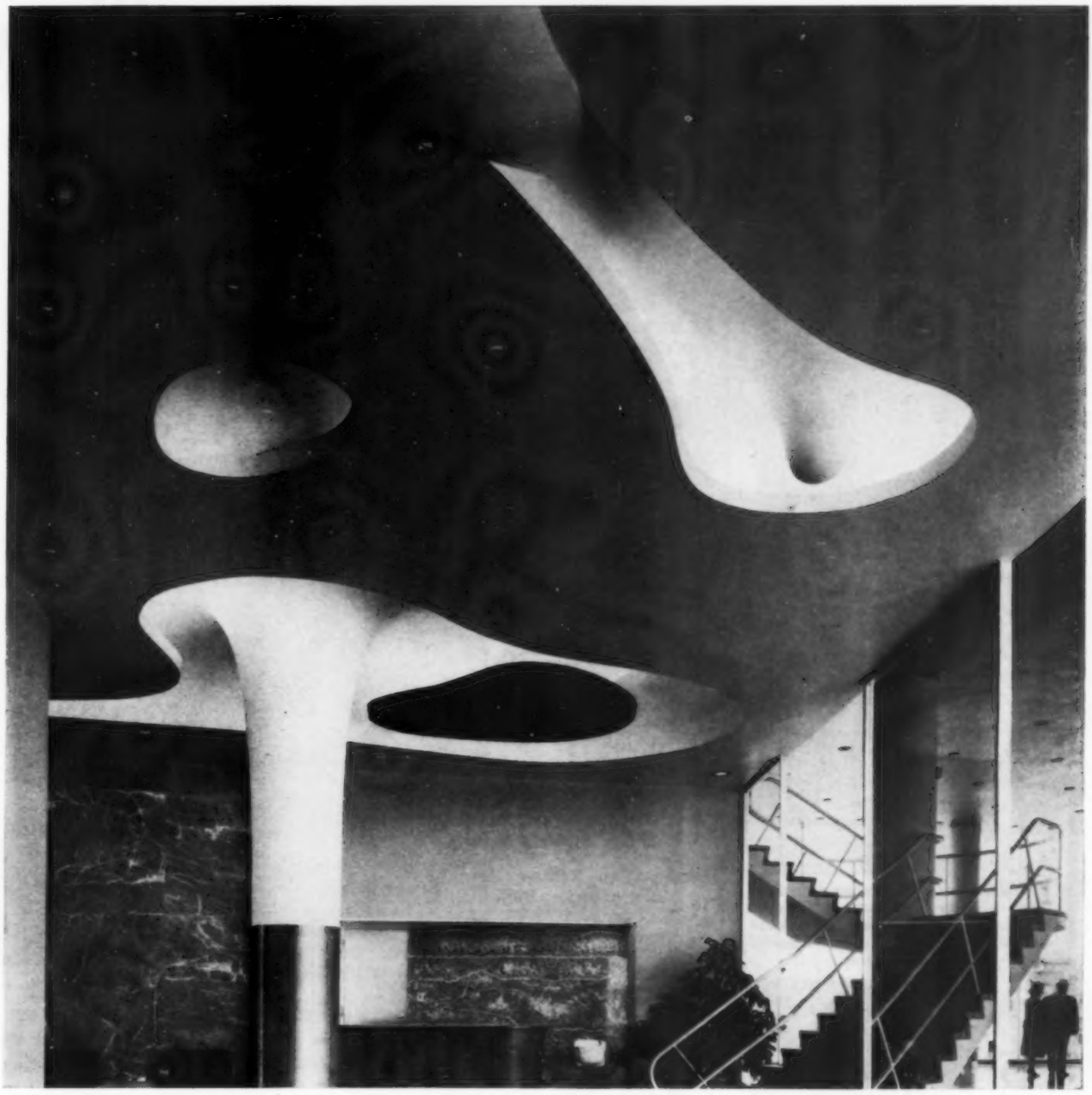

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(Continued from page 142)

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APPOINTMENTS

The College of Architecture and Design, University of Michigan, has announced the appointment of C. THEODORE LARSON as professor of architecture, and of WILLIARD A. OBERDICK and EDWARD V. OLENCKI as instructors in architecture, effective with the fall semester.

PETER BLAKE has been appointed curator of the Department of Architecture, Museum of Modern Art, New York, N. Y., succeeding Mary Cooke Barnes.

(Continued on page 146)

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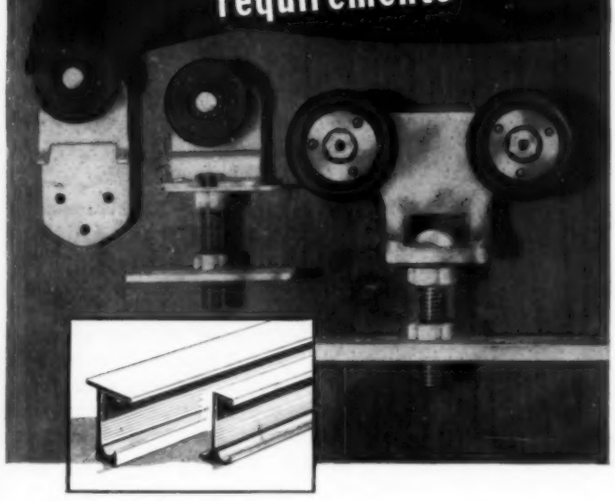

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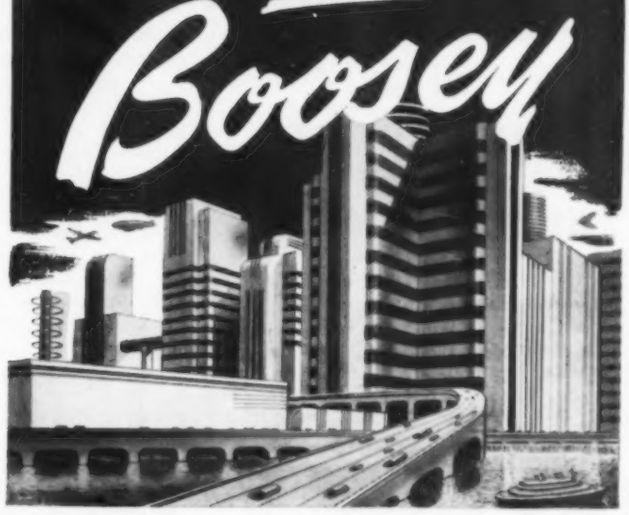

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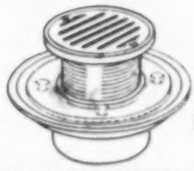

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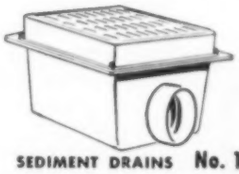

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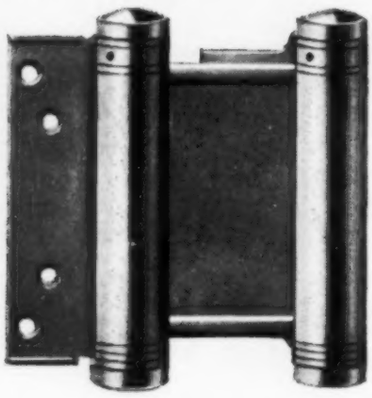

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Notices

(Continued from page 144)

FELLOWSHIPS

The WILLIAM WIRT WINCHESTER TRAVELING FELLOWSHIP for European study has been awarded to Robert R. K. Russell, Jr., of Yale University's Department of Architecture.

Clarence Harrison Hill, Jr., Milltown, N. J., of the Department of Architecture, Yale University, has been awarded the ALICE KIMBALL ENGLISH FELLOWSHIP for the current year.

COMPETITIONS

First place in the annual KENNETH M. MURCHISON AWARD COMPETITION, for the design of a small bank building in a town with a population of 60,000, has been presented to Richard Nevara, of the University of Illinois' Navy Pier School. Second place was awarded to Marvin Goody, of the University of Pennsylvania.

ELECTED

FRANCIS KEALLY has been elected president of the Municipal Art Society of New York.

ROBERT E. ALEXANDER has been re-elected president of the Los Angeles Planning Commission, and R. W. HARPER has been elected to succeed Edmund P. McKanna as vice-president.

AWARD

James Henry Ward, of New Haven, Conn., has been named winner of the WILLIAM EDWARD PARSONS MEMORIAL MEDAL, awarded to the graduating student in the Department of Architecture, Yale University, who has shown the greatest excellence in city planning.

SCHOLARSHIP

Joseph H. Young, a recent graduate of the School of Architecture, University of Oregon, has been named winner of the ION LEWIS TRAVELING SCHOLARSHIP in architecture. Award was made on the basis of Mr. Young's project, "The Tradition of Wood in America and its Expression in Contemporary Domestic Architecture."

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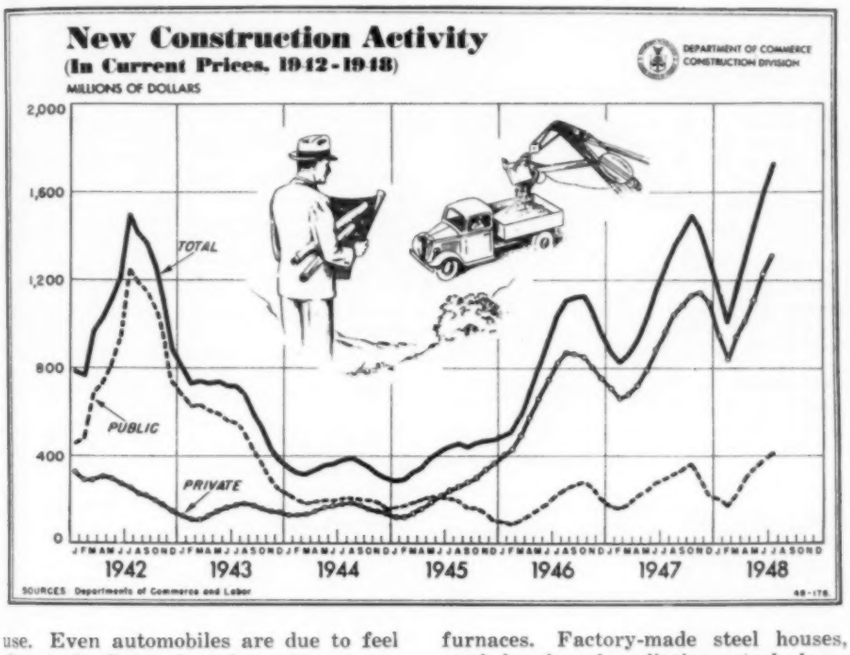
Product Report . . . . October, 1948
IRON AND STEEL

The sad, sad story of iron and steel—and the many products made of iron and steel that go into construction—promises to get worse instead of better. Latest inside government information indicates that the so-called "defense" program is going to step up steel production, but at the same time cut heavily into iron and steel for consumer use. Even automobiles are due to feel the pinch. Better buy that new car now—if you can.


New Construction Activity
(In Current Prices, 1942-1948)
DEPARTMENT OF COMMERCE
CONSTRUCTION DIVISION
MILLIONS OF DOLLARS
2,000
1,600
1,200
800
400
0
TOTAL
PUBLIC
PRIVATE
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1942
1943
1944
1945
1946
1947
1948
SOURCES Departments of Commerce and Labor
48-178

But let's get back to the problems we, as architects, are facing today as we attempt to keep building costs within the realms of reality. Cost, of course, is the most important single factor that keeps construction from proceeding at the rate we'd like to see it move. And yet, new construction today is at an all-time high, with every likelihood of a continued and even greater activity in the future.

Discounting cost, there are hundreds of other factors holding up new construction, varying from lack of labor to slow delivery of materials and equipment. One of the "slow" materials, of course, is steel. With the cost of structural steel up to the point where the index is 143.9 (base, 1939 of 100), it's some wonder that steel is moving at all. Nevertheless, it *is* moving—moving to such an extent that many a building is delayed weeks, and sometimes months, for the steel to arrive.

Biggest attempt to solve the bottlenecks arising from the shortages of materials is the new Public Law 395 passed by the 80th Congress at the end of 1947. This law provides for voluntary agreements for allocation of materials. A system of voluntary allocations by iron and steel producers to industrial consumers is now in operation for certain items of warm air heating equipment, for factory-made steel houses, and for a group of pig iron consumers including manufacturers of (a) cast iron pressure pipe and/or fittings, (b) cast iron soil pipe and/or fittings, (c) cast iron plumbing drainage products, (d) cast iron boilers, (e) cast iron radiation and (f) cast iron castings for warm air furnaces. Factory-made steel houses, steel baseboard radiation, steel doors and bucks, enameled cast iron plumbing fixtures and formed steel plumbing fixtures are also beginning to come under the voluntary agreement plan. However, since all agreements have been in effect for only a short time, no concrete results are yet obtainable. It is safe to say, however, that such a program will stabilize the supply situation so that planning for the future will be possible when contemplating new construction. Heretofore, its been a matter of "hope and pray" that steel would be available when needed.

The Department of Commerce reported recently that the steel industry seems to be headed for a new production record that will outstrip the records set earlier in the year. Increased demand for non-construction uses of steel will probably impose heavy drains on the steel producing industry in the last half of 1948, and the impact resulting from the voluntary allocation program will cause some redistribution of available steel supplies among the different types of steel users.

Approximately 12 percent of the total output of finished steel products goes

(Continued on next page)

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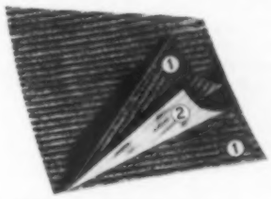

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(Continued from previous page)

into construction annually. And this year, with production for construction estimated at about 8.4 million tons, the building industry may end up by using 13% of the total production. Even so, there is every reason to believe that the tight supply situation for all types of sheet steel and steel pipe, particularly those products which are galvanized, will become more critical as the months roll by.

The fact that iron and steel products may become critical, however, does not in any way detract from the bright future facing the construction industry. Because of new production records due for next year, and because of the terrific demand for all types of construction, the entire building industry can look forward to many more months of prosperity. There seems to be little indication of a drop in prices, so buildings are moving from the planning stage to the building stage at a rapid rate.

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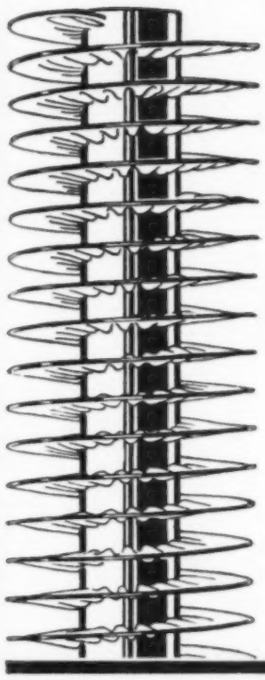

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P.S.

I'M VERY MUCH ANNOYED AT A NUMBER OF YOUNG ARCHITECTS, and I think it's time to give them hell. The older boys have been catching it in the architectural press for a number of years, while the younger designers have been getting away with all sorts of things. Just for this one column I'd like to turn the tables.

The thing I want to complain about is superficiality. There are too many young practitioners who assume that freshness and imagination and ingenuity—admirable concomitants—are the only things needed to produce good design.

I know a young architect who designed a hospital, superficially well planned in that all the patients' rooms were on the south and had good light, but with a poor relationship of departments. He hadn't bothered to go through the research necessary—he was too sure that he must be right and the oldsters wrong. I know a young architect who designed a school, bilaterally lighted and all of that, but with such improper provisions for general needs that the building very soon became a white elephant in the community.

I'VE SEEN TOO MANY CONTEMPORARY BUILDINGS THAT ARE POORLY DETAILED. Why is this? Knowledge of how to put materials together properly is not difficult to obtain. I go along with the thesis that there's no need to build for posterity in all cases, and yet I don't like to shut the door from a living room to a terrace and have the adjoining "fixed" window rattle in its frame. Nor to see rain water stains on a dining room wall. Nor to see a stair-tread sagging six months after the house has been built.

I've seen too many materials used in a manner contrary to their properties. I've seen too many public spaces overdesigned and some underdesigned acoustically. Of course these things have occurred before, but I'm talking now of the bright young men who are presumably more familiar with modern materials than their elders were.

WHAT'S MORE, I'VE SEEN TOO MANY "YOUNG" OFFICES POORLY RUN. Striated plywood walls in the reception room don't necessarily mean that an efficient organization functions behind them. Why do two brilliant young "designers" think that a partnership will work out well for them? Why don't they realize that a man weak on structure or mechanics or business methods needs a partner who complements, not supplements him? Why do some young progressive architects write bad, long-winded specifications? Why are some of them careless in their contractual relations with both client and builder?

I don't by any means intend to imply that all men under forty are guilty of these careless practices, or that all above a certain age are free of them. That obviously isn't true; the general level of progress in architecture has been too great to be denied. Nor do I feel that too much time has been spent on esthetics and the philosophy of design; changing concepts have to be understood, appraised, studied, tried. But technical and professional competence must not slip in the meantime, and I fear that it has slipped alarmingly in many cases.

Dynamic space conceptions are part of our time, mathematically, philosophically and esthetically, but they have to be constructed from adequate details and competent specifications. Sociological program studies are needed to mark the new uses of structures, but the man who makes them has to be in business and be reasonably sure that another job's coming when one is finished. There are many facets to the design of structures, and the really *good* designer can't afford to overlook any of them.

●

THE INSTITUTE OF DESIGN AND CONSTRUCTION IN BROOKLYN, Vito Battista director, had a competition in one of the design classes recently for which six prizes were given—six subscriptions to PROGRESSIVE ARCHITECTURE.

●

YOU MIGHT BE INTERESTED IN SOME DATA ABOUT ARCHITECTURAL PRACTICE that was gathered for us recently as part of a nation-wide survey. These are miscellaneous facts, secured from interviewing a representative group of active firms, presented here without comment.

Type of practice:

General	84%
Specialized	16%

Of those who specialize, the specialization is:

Institutional	71%
Commercial	57%
Industrial	52%
Residential	19%

Proportion of firms designing various types of buildings in past three years:

Stores & shops	89%
Industrial	79%
Commercial	75%
Residential	75%
Educational	72%
Office Buildings	63%
Churches	60%
Hospitals	56%
Apartments	53%
Recreational Buildings	44%
Multiple housing	43%
Public Buildings	43%
Theatres	19%
Hotels	18%
City plans	12%

Proportion of firms retained as consultants:

No consultation work	54%
Industrial or retail	20%
Educational	16%
Hospitals	12%
Financial	9%
Governmentals	8%
Other	13%

Number of active partners:

1	24% of firms
2	34% of firms
3	23% of firms
4	14% of firms
5	1% of firms
More than 5	4% of firms

Exclusive of principals, number of employees:

5 or less	54% of firms
6 - 10	21% of firms
11 - 25	13% of firms
25 or over	12% of firms

●

SPEAKING OF ARCHITECTURAL EMPLOYEES, I HAD A CALL THE OTHER DAY from a man who's looking for a job after twenty years of good work in a well-known office. Those things happen all too often in professional life. I remember that several years ago I wrote a piece about "The Architect" in which I mentioned the unfortunate fact that employees in architects' offices often were hired for one job, and found it necessary in many cases to shift from one place to another until they had established themselves. A young friend of mine thanked me heartily and said he'd shown the article to his mother-in-law, who had never been able to understand why Sally's husband couldn't seem to hold a job.

There is, of course, the story about the man who had been with Warren & Wetmore for some twenty years. Work got slack after the Grand Central Station job in New York and the partners reluctantly decided they would have to let John go. Whitney Warren called him in and broke the bad news, apologizing and explaining how badly he felt about the whole thing.

"That's all right, Mr. Warren," John said. "When I was hired I was told that it was a temporary job."

Thomas H. Creighton